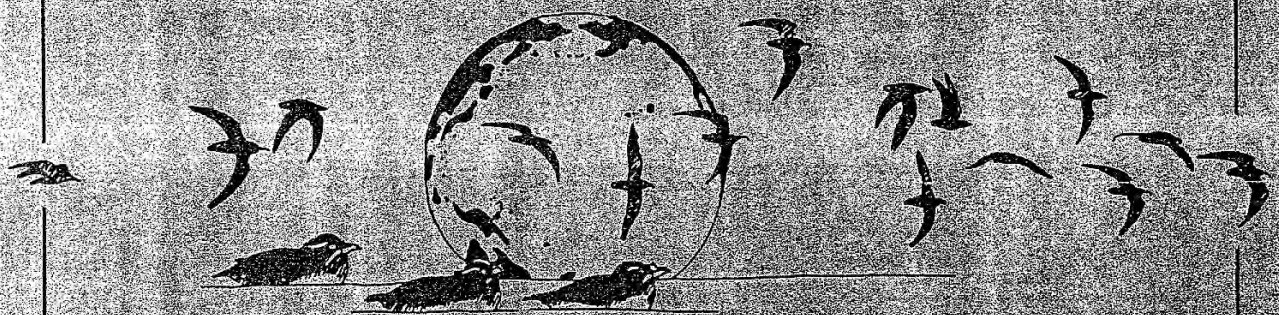


Pacific Seabirds



A Publication of the Pacific Seabird Group

Volume 22 Number 2

1995

Dedicated To The Study And Conservation Of Pacific Seabirds And Their Environment

The Pacific Seabird Group (PSG) was formed in 1972 out of a need for better communication among Pacific seabird researchers. The Group coordinates and stimulates the field activities of members involved in research and informs its members and the general public of conservation issues relating to Pacific seabirds and the marine environment. Group meetings are held annually and the PSG publication, *Pacific Seabirds* (formerly the *PSG Bullenn*), is issued biannually. Current activities include involvement in seabird sanctuaries, coastal surveys, seabird/fisheries interactions, and legislation. Policy statements are issued on conservation issues of critical importance. Although PSG's primary area of interest is the west coast of North America and adjacent areas of the Pacific Ocean, it is hoped that seabird enthusiasts in other parts of the world will join and participate in PSG. PSG is a member of the U. S. Section of the International Council for Bird Preservation. Annual dues for membership are \$20 (individual and family), \$13 (student, undergraduate and graduate), and \$600 (Life Membership, payable in six \$100 installments). Dues are payable to the Treasurer, whose address is on the back cover.

Pacific Seabirds

Pacific Seabirds (ISSN 0740-3371) is published twice a year, in the spring and fall, and contains news of interest to PSG members, including regional seabird research, conservation news, and abstracts of papers presented at the annual meeting. *Pacific Seabirds* is an outlet for the results of scientific research, as well as articles and shorter items on seabird conservation, seabird research activities, and other topics related to the objectives of PSG. All technical materials and book reviews should be submitted to the Publication Committee Coordinator, conservation-related material to the Vice-Chair for Conservation, and all other material to the Editor. Back issues of the *Bullenn* or *Pacific Seabirds* may be ordered from the Treasurer; please remit \$2.50 each for issues of Vols. 1-8 (1974-1981) and \$5.00 each for issues of Vol. 9 and later.

Permanent Address

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Donations

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Forum

Ahoy PSGers

As we finish up our 1995 field season, it's time to reflect on what a productive year it has been. El Nino dissipated in time for most areas to add members to the flock. Likewise with the Pacific Seabird Group, this has been a banner year for the organization. Production is way up, especially thanks to the volunteer efforts of several key members of our organization.

We have embarked on several ambitious projects. First and foremost is the Exxon Valdez Restoration Workshop, which will be just concluded by the time you read this. I want to thank Craig Harrison for pursuing the grant that netted PSG \$77,000 to convene a working group of international seabird experts. Ken Warheit deserves special acknowledgment for voluntarily leading the Steering Committee though the myriad decisions necessary to carry off such a task. With their incisive leadership, PSG was able to enlist the expertise of some of the world's experts on seabirds, aided by PRBO in developing working papers under contract to PSG to guide the initial thinking in the working groups. As a result, seabirds can be served by the collective wisdom derived from so many field-hours by the most experienced among us.

Another new PSG project involves the Seabird Monitoring Project, also described herewith. Scott Hatch has written a grant from the NBS and that tasks the Seabird Monitoring Committee to implement a historic seabird population database for the Pacific. Hatch's vision has been rewarded with \$130,000 from the National Biological Service to create an archive of data that will outlast all of us and provide perspectives of seabird population trends for future managers.

It is especially gratifying to see a committee "go for it" and Steve Speich, the Publication chair, has inspired me with his motivation. In addition to this publication that you receive bi-annually, Steve has helped issue a PSG brochure. We will now begin fund-raising in earnest to fulfill the Endowment Fund which has lingered half complete. I would like to thank him for focusing PSG's efforts toward fulfilling this long-standing goal. We have begun a fundraising effort to complete the endow-

ment fund in three years time. And we will need all the help we can get...especially yours. Even the USFWS is assisting PSG by distributing our brochures at Public Meetings concerning Marbled Murrelet legislation.

With the help of Nancy Nasland and Kim Nelson, we were able to re-issue the Marbled Murrelet brochure for distribution at meetings convened by the USFWS to educate the public about the critical habitat and other aspects of "the fog-lark". Through this outreach, USFWS will distribute PSG's Marbled Murrelet brochure, PSG's membership brochure and an announcement for the Marbled Murrelet Symposium that Kim Nelson spearheaded into print in the Northwest Naturalist. The Marbled Murrelet Committee also drafted a letter of concern about the House Bills designed to gain access into closed stands of timber by adding a salvage rider which would be open to interpretation. The U.S. Forest Service replied with a supportive stance, citing the use of PSG's MAMU protocol in determining occupied stands.

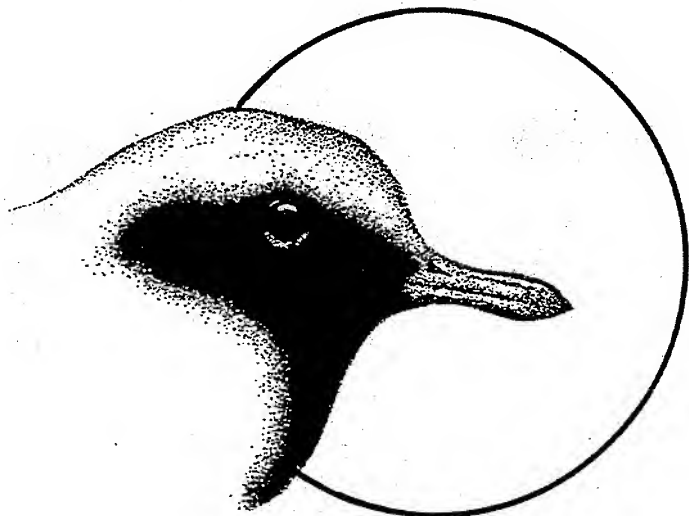
I am pleased that the newly created Mexican Committee is up and running thanks to Mauricio Cervantes. As you know, PSG received a NAFTA grant for \$25,000 to expose Mexican biologists to developing seabird restoration techniques. An outgrowth of the grant has been Cervantes heading the committee to coordinate activities, keep new members in Mexico in-

formed and to represent PSG at Mexican meetings. We look forward to his increasing participation in PSG outreach efforts.

Treasurer Jan Hodder has been my beacon in the fogs of finance. As our new treasurer, she has taken the weighty torch from Ken Warheit and carried it with grace under fire. In addition to managing the books, she also administers the membership and prints mailing labels necessary to communicate with YOU. Also, I am happy to welcome Pat Baird to the Elections Committee and to thank outgoing Doug Forsell for easing the transition and for his years of service in that capacity.

As chair, I have been my privilege to work with these people who have taken time from their busy careers to help our organization grow. Now that we are on line via e-mail, and the business of PSG has increased, it is now easier and more critical for members to get involved. One way everyone can help PSG is to follow up on Pat Baird's request to help US raise OUR membership and thereby fulfill OUR endowment fund. Please get a new member, give a membership to a friend, institution, a library, or an international seabirder. WE NEED OUR membership to grow and want you to get involved financially and actively by donating \$\$\$ and time. Now that field gear is cleaned and put away for a while, we need YOU to get involved. Thank you for supporting PSG!!

Mark Rauzon, Chair



Pacific Seabird Group-Mexico: Program for incorporation of Mexican projects and scientists for the conservation and management of seabirds and their environments along the Mexican Pacific coast

Mauricio Cervantes Abrego, Co-Chair of Mexico Wetlands for the Americas, ITESM-Campus, Guaymas, Bahía Bacoichampo s/n, Col. Lomas de Cortés, A.P. 484 Guaymas, Son. 85400 México

INTRODUCTORY ANALYSIS

The following is a first review of the projects, programs, and activities developed to date by universities and investigation centers in Mexico and related to the Pacific Seabird Group Reunion in San Diego, California and the Meeting of Cooper Ornithological Society/CIPAMEX, in La Paz, Baja California Sur.

The participation of investigators in coordinated activities is limited, isolated, and geographically confined. The majority of the investigations developed for seabird and coastal birds occurs in Mexico's Northwest, due principally to

- the concentration of bird colonies;
- the isolated conditions (great quantity of islands);
- the biggest estuary systems;
- the tendency of investigators from universities in northwest Mexico to study seabirds;
- the influence of investigators from North America to initiate and maintain those tendencies.

There are few institutions in Mexico that have formal programs for the study and management of seabirds and coastal birds—only CICESE maintains continuous programs; UABC and UABCS have only research lines derived from the courses or laboratories associated with birds. UNAM, the Instituto de Biología, and the Instituto de Ecología have had programs for more than 10 years, but limited to two sites, Isla Raza in Golfo de California and Isla Isabel in Nayarit. Except for the foreign universities with programs in Mexico, the remaining institutions have yet to include research, monitoring, and management as part of their courses. Financing for programs is very limited: The majority of the responsible researchers involved with the programs are associated with foreign universities that have similar programs or have applied for financial support to non-government organizations in the United States. Most financing for research has its origin in a university's budget, as part of field studies. There are few projects or programs that have strong financial support, institutional participation, or continuity within the participating institution.

Projects and research mainly address the area's ecology and only recently began to incorporate restoration, conservation, and management. Unfortunately, most institutions pursue projects that are indirectly financed for other purposes, such as environmental assessment and land use planning. It is easy to see that the focus of the project is determined by the available funds.

On the other hand, it is important to remember that the success of most research programs is the result of the researcher's ability to coordinate its financial promotion, its continuity, and its infor-

mation production as related to the conservation and protection of the study zone, as in the cases of Islas del Golfo and, especially, Isla Raza and Isla Isabel.

There are only two Mexican organizations associated with the study and conservation of seabirds: Consejo Internacional para la Protección de las Aves (internationally known as Birdlife International), Sección México and the Sociedad Mexicana de Ornitología (SMOAC), which includes most of the ornithologists in Mexico. Both organizations are located in Mexico, D.F., the development area that embraces both institutions, and both basically coordinate matters of taxonomy and bird systematic and invitations to symposia, congresses, and meetings. The seabird component of these organizations is limited, as is strategic planning.

For the second phase of this program and to complement this analysis, this report will be sent to the organizations whose members include Mexican ornithologists. In addition, we will attend the IV National Congress of Ornithology to present this project and to look for ways to help projects and scientists implement the initiatives proposed by the Pacific Seabird Group. Also, informative notes will be sent to each one of the members and participants of both meetings of ornithologists in Mexico.

EXECUTIVE SUMMARY

INSTITUTIONS

Investigation Centers:

Centro de Investigación Científica y de Educación Superior de Ensenada, B.C.	CICESE
Centro de Investigaciones Biológicas del Noroeste	CIB-Nor
Centro de Ecología, UNAM	CE-UNAM

Universities:

Universidad Autónoma de Baja California	UABC
Universidad de Nevada, Reno	UN
Universidad Autónoma de Baja California Sur	UABCS
Universidad de Cornell NY	UC-NY
Universidad Nacional Autónoma de México	UNAM
Universidad de California	UC
Universidad de Arizona	UA
Instituto Tecnológico y de Estudios Superiores de Monterrey, Campus Guaymas.	ITESM-Guaymas

Non-Government Organizations :

Conservation International	CI
Humedales para las Américas	HA

Articles

Consejo Internacional para la Protección
de las Aves-México CIPAMEX
Special Expeditions, INC. World Wildlife Fund WWF

Government of Mexico:
Secretaría de Medio Ambiente Recursos
Naturales y Pesca SEMARNAP
Instituto Nacional de Ecología, INE
Dirección General de Aprovechamiento
Ecológico de los Recursos Naturales DGAERN
Dirección de Areas Naturales Protegidas DANP

Total of institutions : 17

CATEGORIES

Thematic:	Works
Fisiology	1
Ecology	11
Fenology	1
Exploitation of natural resources	1
Restoration	4
Conservation 3Management	5
Total	26

SPECIES	COMMON NAME
Sulidae	
<i>Sula leucogaster brewsteri</i>	Brown Booby
<i>S. nebulosus nebulosus</i>	Blue-footed Booby
Ardeidae	
<i>Casmerodius albus</i>	Great Egret
<i>Egretta caerulea</i>	Little Blue Heron
<i>Egretta thula</i>	Snowy Egret
<i>Egretta tricolor</i>	Tricolored heron
<i>Ardea herodias</i>	Great Blue Heron
<i>Bubulcus ibis</i>	Cattle Egret
<i>Nyctanassa violacea</i>	Yellow-crowned Night-Heron
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron
Anatidae	
<i>Branta bernicla</i>	Brant
Scolopacidae	
<i>Calidris mauri</i>	Western Sandpiper
<i>Charadrius wilsonia</i>	Wilson's Plover
Laridae	
<i>Larus livens</i>	Yellow-footed Gull
<i>Larus heermanni</i>	Heermann's Gull
<i>Sterna antillarum</i>	Least Tern
<i>Sterna fuscata</i>	Sooty Tern

Total : 17 species

CONTINUITY

	Works
Research lines	11
Thesis	3
Program	10
Total	24

LITTORAL PACIFIC STATES

Baja California
Punta Banda, B.C.
Bahía de San Quintín, B.C.
Islas Asunción and San Roque, B.C.

Baja California Sur
Laguna Ojo de Liebre, B.C.S.
Laguna San Ignacio, B.C.S.

Estero de Punta Banda, B.C.
Bahía de La Paz, B.C.S.
San José del Cabo, B.C.S.
Isla San Pedro Mártir, B.C.S.
Ensenada de la Paz, B.C.S.
El Conchalito, B.C.S.

Jalisco

Islas Marietas, Jalisco

Nayarit

Isla Isabil, Nayarit

Sinaloa

Reserva Especial de la Biósfera Islas del Golfo de California

Sonora

Estero del Soldado, Sonora



México (national level) 2	Golfo de México (regional level) 2
Total of States: 6	Total of Sites: 14

Project Analysis that Include:

1.- Project Title	6.- Financial Source
2.- Institution	7.- Budget
3.- Responsible	8.- Research lines / Program or Thesis
4.- Executive	9.- Period
5.- Laboratory / Department	10.- Summary

ABSTRACTS

BAJA CALIFORNIA

Project Title: Condición Corporal de *Calidris mauri* Durante el Invierno en Punta Banda, B.C., México.

Institution: CICESE.

Responsible: Yolanda Y. Sandoval y Horacio de la Cueva.

Executive:

Laboratory or Department: Departamento de Ecología.

Financial Source:

Budget:

Research lines / Program or Thesis: Línea de investigación (fisiología)

Period:

Summary: Se comparó la condición de *Calidris mauri* invernantes (octubre-abril) en Punta Banda con migratorios (julio) en Boundary Bay, Canadá; las aves son más pesadas en Boundary Bay. Se evaluaron los cambios en la masa y composición corporal en ambas áreas y se compararon los resultados con valores previamente registrados. Para determinar los cambios en la masa corporal las aves se atraparon mensualmente con redes de niebla, se anillaron, pesaron, midieron y se calculó el

índice de grasa. La composición corporal se determinó bioquímicamente comparando 30 aves sacrificadas entre octubre y marzo en Punta Banda con 16 aves sacrificadas en julio en Boundary Bay. También se compararon los cambios en la masa corporal y el índice de grasa, la masa corporal aumentó a través del tiempo en el área de invernación. Hay una correlación positiva entre el índice de grasa y la masa corporal. Las aves migratorias son más pesadas y sus reservas de grasa son más altas que las aves invernantes, explicando parcialmente sus capacidades migratorias.

Project Title: Distribución en Invierno y Fidelidad al Sitio para Invernar de los Gansos de Collar (*Branta bernicla*) en Baja California.

Institution: Nat. Biol. S.

Responsible: Lee Tibbitts y David H. Ward.

Executive:

Laboratory or Department:

Financial Source:

Budget:

Research lines / Program or Thesis: Programa (Ecología)

Period:

Summary: La mayoría de la población migratoria del Pacífico del ganso de collar (*Branta bernicla*) pasan el invierno en la costa Oeste de Baja California, en la Bahía San Quintín, Laguna Ojo de Liebre y Laguna San Ignacio. Usamos observaciones de aves marcadas en los sitios de reproducción en Alaska, los Territorios del Noroeste y Extremo Oriente de Rusia para examinar las relaciones entre las distribuciones de reproducción y de invierno. No encontramos evidencias que expliquen las diferencias en los patrones de la distribución de invierno entre las diferentes poblaciones reproductivas. Los individuos exhibieron una fuerte fidelidad al sitio de invierno con la gran mayoría (>95%) de las aves observadas en años consecutivos retornando al mismo sitio. Además los individuos fueron fieles a sitios específicos para descansar en los lagos; se encontró intercambio entre los sitios de descanso en un porcentaje mayor al 20%.

Project Title: Aspectos Ecológicos de las Garzas (Aves: *Ardeidae*) del Estero Punta Banda, Baja California, México.

Institution: UABC

Responsible: Salvador González Guzmán, Gorgonio Ruiz Campos y Marcelo Rodríguez Meraz.

Executive:

Laboratory or Department: Fac. de Ciencias

Financial Source:

Budget:

Research lines / Program or Thesis:

Period:

Summary: Los aspectos ecológicos de las garzas en los hábitats de vegetación de marisma, planicies lodosas y canales de marea del Estero Punta Banda, B.C. fueron estudiados a través de censos semanales en condiciones de bajamar, durante un ciclo anual (septiembre de 1989 a agosto de 1990). Siete especies fueron registradas (*Ardea herodias*, *Bubulcus ibis*, *Casmerodius albus*, *Egretta caerulea*, *E. thula*, *E. tricolor* y *Nycticorax nycticorax*), siendo *A. herodias* y *E. thula* las más

frecuentes (29% y 61%, respectivamente) y de mayor densidad relativa (45% y 39%). El mayor número de ardeidos fue registrado en otoño y el menor en verano. Las observaciones sobre el uso del hábitat, indican que las garzas utilizan principalmente el estero durante sus estadíos pre y post-reproductivos como un área de alimentación y pernatación. De acuerdo a su ocurrencia en los tres tipos de hábitats presentes en el Estero de Punta Banda, cinco prefieren la vegetación de marisma, cuatro los canales de marea y dos las planicies lodosas.

Project Title: Fenología del Playero Occidental (*Calidris mauri*) en Punta Banda, Ensenada, B.C. México.

Institution: CICESE

Responsible: M. Alejandra Buenrostro y Horacio de la Cueva. Nills Warnock (EECB, Univ. Nevada, Reno)

Executive:

Laboratory or Department: Depto. Ecología.

Financial Source:

Budget:

Research lines / Program or Thesis: Línea de investigación (Fenología)

Period:

Summary: Existe segregación sexual espacial en *Calidris mauri*, siendo los machos más abundantes en la parte norte de su rango de distribución. Para corroborar esta hipótesis: 1) capturamos, sexamos y determinamos la edad de 341 aves de (4000-5000) durante los inviernos de 1994 y 1995 en 4 zonas del estero; 2) establecimos la proporción de machos:hembras y juveniles:adultos; 3) determinamos la distribución espacial de *C. mauri*. De las aves capturadas 87% fueron machos y 13% hembras. la proporción machos juveniles:adultos fue 1:1. Los juveniles mostraron segregación sexual con la mayor abundancia en la zona 4 (estanque marino) pobre en alimento. La mayor concentración y abundancia de juveniles y machos adultos (45.2% y 57.7% respectivamente) ocurrió durante la marea alta (1.2-1.5) en la zona 2 (nacimiento del estero). En marea baja (-0.28-0.6m) las aves se distribuyen a lo largo de todo el estero. Punta Banda es una zona utilizada para invernación principalmente por machos. Existe segregación sexual en algunas de las zonas estudiadas.

Project Title: Diformismo Sexual y Rango Migratorio en el Playero Occidental (*Calidris mauri*).

Institution: CICESE

Responsible: Horacio de la Cueva

Executive:

Laboratory or Department: Depto. de Ecología

Financial Source:

Budget:

Research lines / Program or Thesis: Línea de investigación (Ecología-migración)

Period:

Summary: *Calidris mauri* pasa el invierno en la costa oeste desde la Bahía de San Francisco CA, hasta el norte de Chile y en la costa oeste desde Florida hasta Surinam. Se describieron cuatro clases de aves y se compararon basados en sexo y edad (adultos y juveniles). Bajo una distribución libre ideal las

clases deberían de dispersarse homogéneamente en los hábitats utilizados en el invierno. Las diferencias respecto a esta distribución pueden deberse a tiempos de partida diferentes del hábitat de reproducción entre los machos, las hembras y los juveniles, competencia entre las clases por el hábitat de invierno, rangos migratorios diferentes, o diferencias fenológicas en las estrategias reproductivas. Calculé los rangos migratorios (dados en primera aproximación por diferencias entre clases sobre sus reservas energéticas, morfología y aerodinámica) para poner a prueba predicciones de distribución libre ideal en contraposición con los rangos migratorios, y competencia reproductiva. No tomé en cuenta factores tales como vientos dominantes y calidad del aire para subrayar la importancia de las diferencias aerodinámicas entre las clases.

Project Title: Flight Speeds and Costs During Reproductions in Heermann's Gulls.

Institution: CICESE, Ensenada, B.C. México.

Responsible: Horacio de la Cueva.

Executive:

Laboratory or Department:

Financial Source:

Budget:

Research lines / Program or Thesis: Línea de investigación (Ecología)

Period:

Summary: Estimations of reproductive expenses and daily energy balance of any bird with parental responsibilities should include the costs of chick rearing, adult maintenance, and foraging. I consider chick growth (estimated with a Gumperts curve), adult maintenance and flight costs, and morphology to determine parent's optimal flight speed and energy expenditure when feeding young. When food load and predominant winds are taken into account optimal speeds, flight costs, and foraging ranges change. The model can be tested measuring: chick growth rate, load size, flight speeds and maximum flight range of adults rearing chicks.

Project Title: Cacería y Comercio de Aves en Baja California.

Institution: UABC

Responsible: María E. Arellano, J.A. Acosta, M.J. Martínez y M.A. Macías.

Executive:

Laboratory or Department: Fac. de Ciencias.

Financial Source:

Budget:

Research lines / Program or Thesis: Programa (Explotación de R.N.)

Period:

Summary: Se presentan los resultados obtenidos de un estudio sobre la problemática asociada a la cacería y comercio de aves en Baja California. La actividad cinegética se ejerce en su mayor parte por extranjeros y se restringe principalmente a la cacería de gansos, codornices, faisán de collar y otras especies de menor tamaño.

Los principales problemas encontrados dentro de la cacería fueron: falta de estudios biológicos y de dinámica poblacional, falta de vigilancia por parte de las instituciones

correspondientes, deficiente estructuración del calendario cinegético y furtivismo. En relación al comercio, la familia *Psittacidae* es la que presenta mayor demanda, donde algunos individuos se cotizan hasta en 200 dls.; el provisionamiento de aves a los establecimientos es a través de personas de la localidad, de otros estados del país y/o de la reproducción en cautiverio, existiendo aun comercios que se dedican a la venta de aves silvestres prohibidas por la Norma Oficial Mexicana.

BAJA CALIFORNIA SUR

Project Title: Biología Reproductiva de la Gaviota de Patas Amarillas *Larus livens* en Bahía de la Paz, Durante 1990.

Institution: UABCS

Responsible: Bulmara Zárate y Roberto Carmona.

Executive:

Laboratory or Department: Departamento de Biología Marina.

Financial Source:

Budget:

Research lines / Program or Thesis: Línea de investigación (Ecología)

Period:

Summary: De marzo a junio de 1990 se estudiaron: el tamaño poblacional reproductivo de *Larus livens* en la Bahía de La Paz, y el éxito reproductivo y mortalidad en la Isla Gaviota. Las colonias que se establecieron en Bahía de La Paz fueron pequeñas (6 a 18 nidos), registrándose un porcentaje alto de nidos inactivos (60%). En Isla Gaviota la ovoposición fue asincrónica pero la eclosión fue sincrónica. Las diferencias en el tamaño de los huevos y la sincronía en la eclosión afectaron el éxito de eclosión según el orden de puesta, presentando mayor tamaño y éxito los segundos huevos. Se registraron muertes de los pollos desde la eclosión hasta los 12 días de edad. Los principales factores de mortalidad fueron la competencia intraespecífica y la separación de la nidada.

Project Title: Avifauna del estero de San José del Cabo, B.C.S.

Institution: Universidad Autónoma de Baja California Sur.

Responsible: Dr. Juan Guzmás Poo, G. Brabata.

Executive:

Laboratory or Department: Departamento de Biología Marina.

Financial Source:

Budget:

Research lines / Program or Thesis: Línea de investigación (Ecología)

Period:

Summary: El Estero de San José mantiene una comunidad de aves terrestres y acuáticas prácticamente exclusiva del extremo Sur de la península de Baja California Sur. la comunidad de aves está formada por especies residentes, migratorias y transeúntes tanto de aves acuáticas como terrestres. Las condiciones naturales de área han sido altamente modificadas, lo que se refleja al comparara los listados actuales de aves y aquellos de naturalistas que visitaron la región en el pasado. Las evaluaciones de la avifauna se efectuaron en abril y diciembre de 1993, en marzo y mayo de 1994. Las redes ornitológicas se ubicaron en cinco hábitats del Estero de San José. Las aves acuáticas presentaron variaciones considerables

en cuanto al nivel poblacional, y entre la estación reproductiva y el invierno. La avifauna terrestre presentó una riqueza específica elevada (49 especies); de éstas el 67% son residentes y el 27.12% son invernantes. De las aves observadas la mayoría usó un sólo hábitat (40.82%), el resto utilizó dos o más hábitats.

Project Title: Aspectos del Sitio de Anidación de dos Especies de Pájaro Bobo (*Sula leucogaster brewsteri* y *S. nebouxii nebouxii*) en Isla San Pedro Mártir, Baja California Sur, México.

Institution: Universidad Autónoma de Baja California Sur, Cornell University.

Responsible: Efrén Hernández y Bernie Tershy.

Executive:

Laboratory or Department: Depto. de Biología Marina, UABCS

Financial Source:

Budget:

Research lines / Program or Thesis: Tesis (Ecología)

Period:

Summary: Este trabajo trata aspectos sobre el sitio de anidación de los bobos café (*Sula leucogaster brewsteri*) y de patas azules (*S. nebouxii nebouxii*) en Isla San Pedro Mártir, Baja California Sur, México. Se muestrearon al azar 20 nidos de bobo café, 10 sin huevos y 10 con dos huevos. De estos se retiró el material componente y en tres visitas posteriores (2, 4 y 8 días) se determinó su tamaño y profundidad (0, + y -). De los 10 nidos sin huevos, 5 no presentaron variación (0), 4 disminuyeron (-) y 1 aumentó (+) en tamaño. En nidos con dos huevos (n=7), 3 no presentaron variación (0), 3 disminuyeron (-) y 1 aumentó de tamaño (+). Lo anterior sugiere que hay una variación en el tamaño de nido con mayor frecuencia en la etapa de cortejo, tal vez influenciada por el proceso de reforzamiento de la pareja que se presenta en esta etapa en especies monogámicas. Por otro lado, se caracterizaron los sitios de anidación de las especies en base al muestreo aleatorio y estratificado de 189 sitios de acuerdo al: 1) sustrato, 2) diámetro, 3) cobertura, 4) objetos cercanos (radio de 3m), 5) escondites cercanos, 6) ángulo de incidencia solar, 7) inclinación del terreno y 8) nido más cercano y especie a la que pertenecía. Así se reconocieron 73 sitios con nidos de *S. nebouxii*, 52 sitios con nidos de *S. leucogaster* y 64 considerados como sitios potenciales de anidación.

Project Title: Abundancia y Variación Estacional del Playero Occidental (*Calidris mauri*) en Ensenada de la Paz, B.C.S., México.

Institution: CICESE

Responsible: Guillermo Fernández y Horacio de la Cueva

Executive:

Laboratory or Department: Depto. de Ecología

Financial Source:

Budget:

Research lines / Program or Thesis: Línea de investigación (Ecología)

Period:

Summary: El noroeste de México es considerado como una de las áreas más importantes para la migración invernal de *Calidris*

mauri. De cualquier manera, su abundancia ha sido cuantificada solamente mediante conteos aéreos. En 1992 censamos la Bahía de Chametla en la Ensenada de la Paz, B.C.S. para cuantificar la variación estacional de las aves playeras así como su uso de hábitat. *Calidris mauri* fue la especie más numerosa durante la migración otoñal (agosto a noviembre) y especialmente durante el invierno (diciembre a febrero). En contraste con la costa del Este del Golfo de California, no detectamos migración en primavera y asumimos que esta área se usa solamente como área de migración invernal. Las aves llegan en plumaje reproductivo, mudan rápidamente y vuelven a mudar al plumaje reproductivo antes de abandonar la zona, sin sobrelapar migración y muda. Existen dos hábitats disponibles: marismas y planicies lodosas. El último es el más importante para la alimentación. El uso del hábitat está restringido por las variaciones estacionales en los niveles de las mareas, estando mayor cantidad de hábitat disponible durante la migración otoñal.

Project Title: Reparto de los Recursos Temporal, Espacial y Trófico, por Parte de los Ardeidos Anidantes en el Manglar "El Conchalito", Baja California Sur, México, Durante las Temporadas Reproductivas de 1992 y 1993.

Institution: UABCS

Responsible: Felipe Becerril y Roberto Carmona.

Executive:

Laboratory or Department: Ciencias del Mar.

Financial Source:

Budget:

Research lines / Program or Thesis: Línea de investigación (Ecología)

Period:

Summary: Durante las temporadas reproductivas (marzo-agosto) de 1992 y 1993 se realizaron visitas semanales al manglar El Conchalito, Ensenada de La Paz, B.C.S., con el propósito de evaluar la amplitud y superposición de los nichos ecológicos por parte de las garzas anidantes. Para esto se determinaron las cronologías reproductivas (nicho temporal), las características del sustrato de anidación (nicho espacial) y los hábitos alimenticios de los pollos (nicho trófico) de la garza azul (*Ardea herodias*), la garza chapulinera (*Bubulcus ibis*) el pedrero de antifaz (*Nyctanassa violacea*) y el pedrero blanco (*Nycticorax nycticorax*). En las especies de menor tamaño, garza chapulinera, pedrero de antifaz y pedrero blanco, se observó una sincronía y una relativa semejanza en la utilización de los sustratos de anidación. En contraste, la garza azul, mostró una clara separación en la utilización de las tres clases de recurso. La dimensión que más separó a las especies estudiadas resultó ser la trófica, es decir, sus hábitos alimenticios fueron sustancialmente diferentes. En 1993, se observó el fracaso reproductivo de la totalidad de las colonias asentadas, al parecer ocasionado por factores climatológicos (lluvias y vientos). El trabajo presente puede servir de referencia para futuros planes de manejo en la zona de estudio.

Project Title: Reproducción de Gaviotas en la Bahía de La Paz y Tamaño Poblacional Reproductivo.

Institution: Universidad Autónoma de Baja California Sur.

Responsible: Roberto Carmona P. y Bulmara Zárate.

Executive:

Laboratory or Department: Depto. de Biología Marina.

Financial Source:

Budget:

Research lines / Program or Thesis: Estudio tanto biología reproductiva, biología de las poblaciones de gaviotas.

Period: 1989- 1995

Summary: Se han llevado a cabo censos en diferentes islas dentro de la Bahía de La Paz, B.C.S. de gaviotas y otras aves marinas que se reproducen o dispersan en la Bahía de La Paz, se han registrado sus tamaños coloniales y éxito reproductivo en diferentes áreas.

Project Title: Avifauna del Estero de Rancho Bueno, B.C.S. México.

Institution: CIB

Responsible: Edgar Amador y Juan José Ramírez-Rosas

Executive:

Laboratory or Department: Depto. de Biología Marina

Financial Source:

Budget:

Research lines / Program or Thesis: Línea de investigación.

Period:

Summary: De noviembre de 1993 a junio 1994, se realizaron censos mensuales en un ambiente de manglar (estero Rancho Bueno) en la costa Occidental de Baja California Sur. El estero es una laguna costera somera de 11 km de largo por 300 mts de anchura promedio y sus bordes están cubiertos por vegetación de manglar. El elenco sistemático estuvo compuesto por 56 especies, 24 de ellas migratorias. La mayor parte de las especies que utilizan el área son consideradas marinas o costeras, sin embargo, inciden en ella aves de ambientes terrestres. *Sterna antillarum* y *Charadrius wilsonia* que probablemente anidaron en junio de 1994.

Project Title: Participación de la Comunidad Local en el Proyecto de Restauración de Colonias de Aves Marinas Migratorias en Islas Asunción y San Roque, Baja California Sur, México.

Institution:

Responsible: Lourdes Flores, Raven Skydancer, Bernie Tershy, Don Croll y Dawn Breese.

Executive:

Laboratory or Department:

Financial Source:

Budget:

Research lines / Program or Thesis: Programa (Restauración)

Period:

Summary:

JALISCO

Project Title: Importancia del Estudio de las Aves para dar Alternativas de Conservación en las Islas Marietas, México.

Institution: UNAM

Responsible: Fanny Rebón, Laura Mora y Nora Carrera.

Executive:

Laboratory or Department: Laboratorio de Vertebrados, UNAM

Financial Source:

Budget:

Research lines / Program or Thesis: Línea de investigación (Restauración y manejo)

Period:

Summary: Anteriormente a las islas de México, solamente se les daba el crédito de ampliar la Zona Económica Exclusiva del país. Actualmente se les reconoce como importantes reservas naturales, por sus endemismos, topografía y condiciones climáticas que las hacen importantes laboratorios biológicos. En el Pacífico mexicano existe más de la mitad del territorio insular nacional. Las Islas Marietas, Bahía de Banderas, son un ejemplo de la riqueza ornitológica debida a la abundancia de recursos de la zona. La presente contribución tiene como objetivos destacar la importancia biológica del área, señalar los principales problemas en torno a su conservación y proponer la información de un grupo para el monitoreo y conservación de las islas. Para evaluar las condiciones que presentan las islas, se visitaron desde marzo de 1987 realizando entrevistas a pobladores de la localidad más cercana y observaciones de la actividad humana en torno a ellas. Se encontraron colonias reproductoras de tres especies de aves, que al parecer, son las más grandes registradas para México. Se detectaron ciertos riesgos que las aves enfrentan para sobrevivir, destacando la perturbación del hábitat por el turismo. Con los datos obtenidos, se continúa el estudio encaminado a encontrar estrategias para la protección y uso de las islas. Concluimos con algunas propuestas para cumplir este punto.

NAYARIT

Project Title: Eradicating Feral Cats from Isla Isabel, México.

Institution: UNAM

Responsible: Ma. Cristina Rodríguez y Hugh Drummond.

Executive:

Laboratory or Department: Laboratorio de Conducta Animal, Centro de Ecología, UNAM.

Financial Source:

Budget:

Research lines / Program or Thesis: Programa (Restauración)

Period:

Summary: Feral cats (*Felis catus*) were introduced more than 60 years ago to Isla Isabel, México, where they prey heavily on sooty terns (*Sterna fuscata*), spiny (*Sceloporus clarkii*) and whiptail lizards (*Cnemidophorus costatus*). In 1991 cats killed 25% of the 1358 sooty terns nesting on the island, as well as an undetermined number of chicks, thereby causing the desertion of the whole colony which failed to fledge a single chick. These figures suggest, using optimistic calculations, that the largest sooty tern colony in the Mexican Pacific will face local extinction in approximately 25 years. We intend to completely eliminate the cat population within 18 months, using fish-baited Tomahawk traps and subsequently shooting at cats that avoid the traps. Censures to monitor the numbers of sooty terns, spiny and whiptail lizards before, during and after the eradication of cats will permit an assessment of the campaign's effectiveness. Another potential

effect of eradicating cats, which will be monitored, is the establishment of seabird species hitherto absent from the island.

SONORA

Project Title: Avoiding the Problems of Fragmentation by Conserving Natural Fragments: Benefits of Restoring and Protecting Small Islands.

Institution: Conservation International-México, Cornell University, University of California.

Responsible: Bernie Tersy, Donald A. Croll.

Executive:

Laboratory or Department: Sea of Cortez Ecosystem Program, CI, Section of Neurobiology & Behavior, Cornell University, Institute of Marine Sciences, University of California, Santa Cruz.

Financial Source:

Budget:

Research lines / Program or Thesis: Programa (Conservación y manejo)

Period:

Summary: Most existing reserves are too small and too fragmented for pre-historic ecological and evolutionary processes to continue unhindered by direct human intervention. Unfortunately, human demographic, economic, and sociopolitical forces do not support establishing large, interconnected protected areas. One way to circumvent this disparity between biological necessity and political feasibility is to restore and protect small islands such as the >200 islands and off shore rocks in NW México. Small islands are relatively discrete ecosystems that are important to the conservation of biological diversity for four reasons: 1) they have a large percentage of endemic species and subspecies; 2) they are important breeding areas for seabirds, pinnipeds and sea turtles; 3) many small, islands are not inhabited by humans and are relatively inaccessible to markets; and 4) the species and communities on islands have evolved in natural fragments. Thus, by restoring and protecting small islands we can maintain functioning, unmanaged ecosystems, with high densities of large vertebrates and many endemic species. Furthermore, these ecosystems can be preserved with relatively minor expenditures for land acquisition or conflicts with local human populations. Small islands are vulnerable to four types of human perturbations: 1) habitat destruction due to economic activities such as guano mining and timber extraction; 2) over-exploitation of animals due to commercial or subsistence hunting and eggging; 3) disturbance of colonial breeding vertebrates, and other animals by visitors; and 4) the introduction of exotic species- the largest cause of recorded extinctions. We recommend research, education, and management steps which will advance island conservation efforts; and outline the use of regional island conservation databases, to prioritize islands for preservation, restoration, or management based on their human use, biological importance, and their amount of ecological degradation.

Project Title: A Breeding Record of *Sterna Antillarum* in Southern Sonora: Implications for Management in Estero del Soldado.

Institution: ITESM-Campus Guaymas.

Responsible: Biól. Marisol Tordecillas

Executive:

Laboratory or Department: CECARENA

Financial Source:

Budget:

Research lines / Program or Thesis: Línea de investigación- Tesis (Ecología)

Period:

Summary: This work presents the first documented breeding record of *S. Antillarum*, in southern Sonora. Van Rossem and Hachisuka (1937) predicted that *S. a. mexicana* were either breeding or preparing to do, but found no evidence of eggs or chicks, probably because they were in the area too early in the season. Eight years later, van Rossem (1945) published an extensive review of the birds of Sonora without confirming the breeding of *S. Antillarum*. This paper documents the presence of a Least Tern breeding colony at Estero del Soldado (27° 56'N-100°01'W) during 1992 and 1993. The colony was visited three times (June 2, 8 and 29) in 1992 and five times (May 30, June 6, 11, 15 and 28) in 1993. A total of 8 active nests, 12 eggs and 10 chicks were counted in 1992, and 9 active nests, 15 eggs and 6 chicks in 1993. I used the presence of nesting seabirds as an argument to modify the buffer zone limits between a proposed tourism development and the estero, resulting in the relocation of a planned golf course.

Project Title: Plan de Manejo del Parque Nacional Isla Isabel, Nayarit.

Institution: SEMARNAP-Centro de Ecología de la UNAM.

Responsible: Dr. Hugh Drummond

Executive: Dr. Hugh Drummond

Laboratory or Department: Centro de Ecología de la UNAM

Financial Source:

Budget:

Research lines / Program or Thesis:

Línea de investigación

Programa

Tesis (Ecología, Conducta, Fisiología, Restauración, Taxonomía)

Period: Desde 1980 hasta la fecha se ha monitoreado Isla Isabel, particularmente las aves marinas, la continuidad del monitoreo está determinada por el Plan de Manejo que se plantea para el Parque Nacional, por parte del Centro de Ecología de la UNAM, que comúnmente son de cinco años.

Summary: Como parte de una iniciativa en el mejoramiento de las áreas naturales protegidas el Sistema Nacional de Áreas Protegidas (SINAP) ha cedido al Centro de Ecología de la UNAM la administración del Parque Nacional. No se tiene precedente de un hecho similar, sin embargo, es importante destacar que la administración del Parque debe recaer en una Institución como el Centro de Ecología y particularmente el laboratorio del Dr. Hugh Drummond, los cuales han laborado por más de 10 años en la región.

Program Title: Plan de Manejo de la Reserva Especial de la Biósfera Islas del Golfo de California.

Institution: Secretaría de Medio Ambiente Recursos Naturales y Pesca (SEMARNAP) Instituto Nacional de Ecología (INE), Dirección General de Aprovechamiento Ecológico de los Recursos Naturales (DGAERN), Dirección de Áreas Naturales Protegidas (DANP).

Responsible: Antropólogo Héctor Ruiz

Executive: Antropólogo Héctor Ruiz

Laboratory or Department: Sistema Nacional de Áreas Protegidas

Financial Source: Global Environmental Facility-World Bank

Budget: ?

Research lines / Program or Thesis: Programa

Period: ?

Summary: Actualmente la SEMARNAP a través de la DGAERN establece un Comité Técnico Asesor a fin de garantizar la adecuada administración de las islas junto con los Estados. Los Comités Técnicos facilitarán la administración y conservación de las islas dando marcha al Plan Operativo por regiones.

Program Title: Determinación de Sitios de Importancia para las Aves Playeras y las Estrategias de Conservación en México 1995-1997.

Institution: Humedales para las Américas, Oficina México

Responsible: Mauricio Cervantes

Executive:

Laboratory or Department: Programa de la Red Hemisférica de Reservas para Aves Playeras, Sección México.

Financial Source: Fondos gubernamentales de programas de colaboración al Comité Tripartita México-Estados Unidos-Canadá, al Programa Latinoamericano del Servicio Canadiense de Fauna Silvestre.

Budget: \$ 45,000.00 USD en solicitud para el primer año.

Research lines / Program or Thesis: Programa

Period: 1995-1997 (tres años)

Summary: En México, las aves playeras han sido objeto de amplios estudios a lo largo de las costas del Pacífico, del Golfo de México y del Caribe, no así, las experiencias de conservación y manejo. Actualmente la producción científica ha disminuido sobre este aspecto. Hoy día son pocos los censos que se generan para las aves playeras y mucho menos los que se publican. Se conocen muy poco de los sitios y de igual forma, en términos ecológicos, la importancia de estos para las aves playeras. Evidentemente la falta de monitoreos a mediano y largo plazo no han continuado, debido principalmente a una coordinación a nivel nacional que promueva y vigile el estudio por las aves playeras. En el caso de las Áreas Protegidas en México que incorporan sitios de importancia para las Aves Playeras, se garantiza su protección en términos legales, no así su protección y manejo, por diversas razones: falta de instrumentación de los planes operativos en las áreas de reserva -como el plan de monitoreo de fauna-, regulación y mitigación de impactos ambientales en las zonas de influencia, etc. La instrumentación de planes de manejo se ha distanciado ampliamente de la protección requerida para el ecosistema que se intenta mantener. Como metas se pretende determinar los sitios de importancia para las aves playeras en México, utilizando la información de

censos aéreos del USFWS, del CWS, investigadores y de grupos de voluntarios en México. Así como definir e instrumentar estrategias de monitoreo y conservación de largo plazo para las aves playeras y sus sitios, complementando la labor y los propósitos de la RHRAP y los mecanismos de protección nacionales y extranjeros. Y por último, instrumentación del "Subprograma de Voluntarios para la Red Hemisférica de Reservas de Aves Playeras (RHRAP)-Sección México" y del "Subprograma de Apoyo y Colaboración al Sistema Nacional de Áreas Protegidas (SINAP) para aves playeras a través del Programa RHRAP-Sección México". Cuyos objetivos son respectivamente:

- a) Formar un cuerpo de observadores voluntarios para monitorear, censar, marcar y colaborar en el estudio de las aves playeras.
- b) Sistematizar y facilitar la información producto del voluntariado complementando la información científica y de censos aéreos.
- c) Capacitación de grupos voluntarios; fortalecimiento de la infraestructura de observación y análisis de la migración y residencia de playeros y formalización de un fondo de distribución para los grupos de voluntarios.
- a) Apoyar los planes de manejo y complementar estrategias de desarrollo para el manejo de las aves playeras y sus sitios declarados por la RHRAP que se encuentren adscritos al SINAP.
- b) Crear mapas de información geográfica asociada a la migración de las aves playeras, esquematizando rutas migratorias, sitios de importancia, temporadas de arribos regionales y censos terrestres a nivel nacional.
- c) Proponer sitios de importancia para las aves playeras potencialmente calificable como parte de la RHRAP.

Program Title: Áreas de Importancia para las Aves.

Institution: CIPAMEX

Responsible: Dra. María del Coro Arizmendi

Executive:

Laboratory or Department: UNAM (Instituto de Biología)

Financial Source: No

Budget: No

Research lines / Program or Thesis: Programa

Period:

Summary: El Programa de Áreas de Importancia para las Aves es una nueva iniciativa de Birdlife International. El Programa generado a nivel nacional por CIPAMEX, representará una contribución significativa para la planificación de la conservación biodiversidad nacional.

Los lugares de importancia para las especies amenazadas globalmente no son los únicos sitios importantes para la conservación de las aves. ciertos lugares pueden ser muy valiosos por sus concentraciones de aves acuáticas y marinas. Relativamente pocas especies de estos grupos de aves están globalmente amenazadas aunque muchas de ellas pueden depender de relativamente pocos sitios específicos para su reproducción, muda de plumaje, agrupamiento durante épocas no reproductivas o alimentación. Otros sitios pueden ser críticos a nivel global, como paraderos de aves migratorias. El programa de IBAs provee:

- Un medio para identificar aquellos sitios más importantes para la conservación de las aves del mundo.
- Un directorio de sitios identificados internacional y objetivamente, científicamente defendibles y de importancia para la conservación de las aves.
- Los cimientos para el desarrollo de estrategias nacionales de conservación fundamentadas y priorizadas en base a la importancia de sitios específicos para las aves.
- Una herramienta para registrar el progreso en la conservación de las aves.
- Un medio para promover las prioridades para la conservación de las aves hacia las organizaciones gubernamentales y no gubernamentales.
- Una oportunidad para fortalecer a las instituciones y su perfil.
- Oportunidades para acrecentar la colaboración entre las diferentes organizaciones involucradas en la identificación de prioridades, conservación de la biodiversidad y trabajo sobre políticas.

Selección de las IBAs.

Los criterios de selección actualmente propuestos implican que las IBAs incluirán los siguientes tipos de sitios:

- Sitios que contienen especies amenazadas globalmente.
- Sitios que contienen especies de rango de distribución restringido.
- Sitios en que ocurren comunidades/congregaciones de especies de aves características de, y restringidas a, zonas/biomas de avifauna que carecen de IBAs.
- Sitios donde las aves se congregan en cantidades regionalmente importantes en épocas reproductivas y no reproductivas o durante su migración.
- Sitios para especies que están declinando en una región biogeográfica.
- Sitios para especies con rangos totales de distribución relativamente pequeños a nivel mundial, pero con poblaciones importantes en una región biogeográfica dada.

Productos del Programa de las IBAs

- Un Directorio Nacional de IBAs.
- Una guía sobre IBAs seleccionadas.
- Mapas, afiches y resúmenes Executives para publicar.

Program Title: Base de Datos para la Conservación de Islas en el NO de México.

Institution: Conservation International

Responsible: Bernie Tershy

Executive:

Laboratory or Department:

Financial Source: Conservation International, Special Expeditions, Inc.

Budget:

Research lines / Program or Thesis: Programa

Period:

Summary: El propósito del proyecto es desarrollar una base de datos que contenga información y/o material relativo a la conservación y restauración de las islas del Noroeste de México (desde las Tres Marías hasta Coronados y Montague, incluyendo el archipiélago de las Revillagigedo).

Project Title: Impacto de las Actividades Humanas en la Región de las Grandes Islas del Golfo de California.

Institution: Universidad de Arizona.

Responsible: Luis Bourillón

Executive:

Laboratory or Department: Escuela de Recursos Naturales Renovables de U.A.

Financial Source: Special Expeditions, Inc. World Wildlife Fund y Conservation International.

Budget:

Research lines / Program or Thesis: Tesis

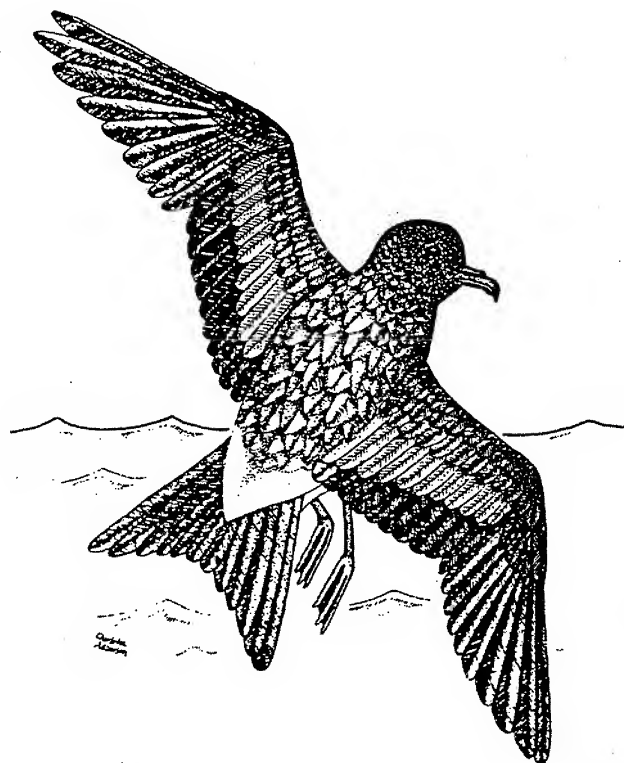
Period:

Summary: Este estudio tiene como objetivo el hacer un diagnóstico de las principales fuentes de impacto humano en las islas, con énfasis en las que se derivan por la pesca artesanal proveniente de los poblados de Bahía Kino, Punta Chueca y Bahía de los Angeles. En la primera fase se determinaron los principales usuarios y de que manera utilizan las islas durante sus actividades. En la siguiente fase se pretende analizar la importancia de los conocimientos tradicionales de los recursos marinos y costeros, y las nociones de territorialidad en la utilización Responsable de estos recursos.

FINANCIAL REPORT

Airplane ticket to La Paz, B.C.S.	\$ 146.00
Implementation of the Poster for the	
PSG reunion in La Paz	\$ 20.00
Inform sending	\$ 20.00
Technical Assistance	\$ 64.00
Total	\$ 250.00

Copy of the receipts enclosed.



PSG News

PSG Goes to Great Britain or "I'm Okay. You're U.K."

George Divoky

PSG currently has several "international" initiatives aimed at encouraging seabird research and conservation in specific countries. With those initiatives in mind, attending a meeting of The Seabird Group seemed appropriate. It was the activities and success of the British-based Seabird Group in the late 1960s and early 1970s that stimulated North American seabird researchers to form the Pacific Seabird Group in 1972.

I must admit that I arrived in Great Britain with a sense of cultural awe having spent little time east of Cleveland, Ohio and none east of the Atlantic Ocean. My experience with things British has been primarily limited to time spent watching public television. Like many people in the States I have this feeling that noncommercial television is the main export of Great Britain and if people in the states do not respond to the frequent fund drives on PBS the entire country of England will be canceled (or at least exist only in reruns).

The seabird conference was held outside Glasgow, Scotland at a Conference Center on the Garscube Estate founded in 1558. Birding on the grounds next to the conference center on the first day, I realized that it would take a country with this much history to be able to form "The Seabird Group" and not feel the need for any modifier. Ornithologists who might be studying "The Guillemot" or "The Puffin" do not feel the need to waste space or time with adjectives. (I was wondering if this imperial view of the world extended to everyday life, with people in British households announcing "Honey, I'm taking out THE garbage."). I do give The Seabird Group credit for thus far avoiding the trap of calling themselves "SG" or perhaps "TSG."

The conference consisted of a Friday night social followed by two days of papers. Mark Tasker, PSG Executive Council member and frequent attendee of PSG meetings, was program chair. The local supporting institution was Glasgow University. Besides twenty-one oral presentations dealing with the theme of the conference, 38

poster papers examined both threats and research results. A keynote talk by John Wiens was entitled "Is oil pollution a threat to seabirds?: the Exxon Valdez incident." Oral presentations were of uniformly high quality and their subjects of enough interest that there were few times when the twenty-five minutes per presentation had one wishing for the shorter talks typical of PSG meetings. The conference covered a wide-range of topics including: 1) the impact of oil spills on seabirds in Alaska, the Persian Gulf, and Shetland Islands; 2) seabird-fishery interactions in Scotland, northern Ireland, the North Sea, the Baltic, Norway and the southern oceans and 3) the impact and removal of introduced predators in Australia and Great Britain. A concluding paper by Pat Monaghan was entitled "Threats to seabirds: potential versus actual." BirdLife International used the conference to assist in the preparation of a Strategic Habitat Action Plan for the conservation of birds of the west European seas. Questionnaires distributed to conference attendees asked people to assess the importance of eighteen categories of threats to seabirds.

The meeting provided a good overview of conservation issues from many areas and examined the importance of a range of anthropogenic impacts. Among the many points made during the meeting two stand out and are important when considering the factors that can influence seabird numbers. John Wiens mentioned the need to discriminate between the "intensity" and "importance" of an impact. Mortality events involving numbers of birds can be intense but not necessarily important at the population level. Pat Monaghan warned against calling everything that can decrease numbers or productivity a "threat" and urged that the term be used for influences that can have a relatively high probability of causing actual harm to a population.

Anyone with the smallest interest in north temperate seabirds is aware of the contribution of British seabird researchers. In the early 1970s my interest in studies of breeding seabirds was stimulated by the books of R.M. Lockley on Manx Shearwaters and Puffins and the potential of following individual birds over a period of time. It was with consternation that I found out that long-term studies are becoming less common in Great Britain. During a discussion session it was mentioned that in the past

North American studies were typically shorter in duration than British ones, but that it was becoming increasingly hard for British researchers to obtain long-term funding. It was with great dismay that I heard from Callum Thomas how the warehouse supporting a well-studied Black-legged Kittiwake colony on its window ledges had been subdivided into flats. Screens were put up over the window ledges to prevent breeding (at least that of kittiwakes). The landmark work by John Coulson, Thomas, and other collaborators at that colony provided some of the most important longitudinal seabird data from the northern hemisphere.

During the last presidential election it was mentioned that if George Bush really wanted to be the leader of a "kinder, gentler nation" he would move to Canada and try to be Prime Minister. If the pace of PSG meetings and the intensity of many of the discussions currently surrounding West Coast seabird issues become too much, I suggest saving your money to attend a "kinder gentler" seabird meeting when The Seabird Group meets again in 1998.

An annual membership in The Seabird Group provides three newsletters and the annual journal *Seabird* and is £10.00 and £5.00 for students. Contact Sheila Russell, Clober Farm, Milngavie, Glasgow G62 7HW.

Exxon Valdez Oil Spill Seabird Restoration Workshop

Kenneth I. Warheit

In May 1995 PSG received final authorization from the Exxon Valdez Oil Spill (EVOS) Trustees to hold a workshop on oil spill-related seabird restoration. Our stated objectives of this workshop were: (1) to provide guidelines on the most appropriate expenditure of restoration funds for seabird populations; (2) to determine the information necessary for the development of seabird restoration plans; and (3) to evaluate the applicability of existing and potential techniques for seabird restoration and recommend avenues of research to aid in the development of restoration techniques.

To accomplish these goals, the Steering Committee (Craig Harrison, Vice-Chair for Conservation and Workshop Co-chair, Kenneth Warheit, Coordinator of the Restoration Committee and Workshop Co-

chair, Mark Rauzon, PSG Chair, John Piatt, Past-chair, and Bill Everett, Chair-elect) and Workshop Executive Administrator (George Divoky) designed the workshop around plenary sessions and small discussion groups. All participants were assigned to one of four discussion groups and attempted to address particular aspects of seabird restoration. The discussion groups focused on the following four themes: (1) baseline data, resource damage assessment activities, and restoration goals; (2) restoration techniques; (3) restoration and recovery monitoring, and modeling; and (4) factors limiting recovery.

The workshop took place 29 September - 2 October 1995 at the Alyeska Prince Hotel, located 40 miles southeast of Anchorage, and included 31 invited participants from the United Kingdom, Belgium, France, New Zealand, Japan, Canada, and the United States. A complete description of workshop activities will appear in the Spring 1996 issue of *Pacific Seabirds* (Vol. 23, Number 1).

Report of the Marbled Murrelet Technical Committee

Marbled Murrelet Technical Committee (MMTC) Newsletter

The extent of research being conducted on Marbled Murrelets and the number of MMTC members have dramatically increased since PSG formed the MMTC. To facilitate communication between members, the MMTC will begin producing a Marbled Murrelet Technical Committee Newsletter. The goal of the newsletter is to provide an informal and informative forum for members to briefly describe their research, results, study plans and goals, or other relevant items of interest. It is anticipated that the newsletter will come out every other month (first issue in October) and will be distributed to all MMTC members. It will not be peer reviewed and is not intended to be cited. Contributions will be brief (1-3 paragraphs) and will include each author's name and contact address. I will edit the newsletter and Linda Long (USFS) will act as managing editor. The USFS Redwood Sciences Laboratory has generously offered to cover production and mailing costs.

For more information, or if you are not

a member of the MMTC (but are a current PSG member) and would like to receive the newsletter, contact me at USFWS, 1011 E. Tudor Road, Anchorage, AK 99503; (907) 345-7542; FAX: (907) 786-3641; e-mail: naslundnl@aol.com.

Marbled Murrelet Recovery Team - U.S.

The "Draft Recovery Plan for the Marbled Murrelet (*Brachyramphus marmoratus*) in Washington, Oregon, and California" is available. The Draft Recovery Plan was developed over the last two years by the Marbled Murrelet Recovery Team and Agency/State Consultants, appointed by the U.S. Fish and Wildlife Service's Region 1 Regional Director. Public comments will be accepted through 10 October 1995.

Marbled Murrelet Recovery Team - Canada

The Canadian Marbled Murrelet Recovery Team is still awaiting approval of its proposed guidelines. They are optimistic because of two major developments: 1) The Biodiversity Guidelines have been officially announced. These include the percentages of land which must be set aside in logging plans. 2) Several forest companies conducted Marbled Murrelet surveys in 1995, covering most of the BC coast. The companies outlined Marbled Murrelet habitat conservation areas according to the Recovery Team's proposed guidelines. Provincial government staff also used the proposed guidelines when assessing harvesting plans.

Nancy Naslund, Coordinator

Japanese Seabird Conservation Committee

This committee was recently formed and has not had sufficient time to obtain information on all of the various issues in Japan. However, the following is a brief update on 1995 Japanese Murrelet efforts. Koji Ono, Yutaka Nakamura, and John Fries continued joint efforts to study breeding biology at Biro Island. Plans for a proposed field station were approved by government agencies and donations have been received to build it. Fries is collating information on seabird conservation issues in Japan. Leigh Ochikubo conducted surveys in Izu Islands with Masami Hasegawa and Jack Moyer. Moyer and others also

studied murrelets at Sanbondake Reef off Miyake Island. (Congratulations to Jack and Lorna Moyer on their new baby!). Other members of the Japan Alcid Society conducted surveys at a variety of other colonies in southern Japan. The Japan Alcid Society had a meeting in early September 1995. A seabird meeting is planned for Haborocho, Hokkaido (near Teuri Island) in June 1996. A seabird visitor center will be built there as well.

Harry R. Carter, Acting Coordinator

Report of the PSG Seabird Monitoring Committee

In 1995, the National Biological Service (NBS) provided funds (\$150,000) for the design and development of a seabird monitoring database for the North Pacific. These funds were received by the Alaska Science Center (ASC) and have been allocated to provide (hopefully) a jump start to the process of realizing PSG goals for this project.

After ASC overhead, the funds available to the project this year amounted to \$130,000. Through a number of inter-agency and cooperative agreements, this money has been obligated as follows:

\$26,000	U.S. Fish and Wildlife Service (FWS), Alaska Maritime National Wildlife Refuge to work with data from numerous colonies throughout Alaska
\$8,000	FWS Migratory Bird Management, Anchorage, for data from Prince William Sound, Cape Thompson and Little Diomed Island
\$5,000	FWS, Togiak National Wildlife Refuge, for data from Cape Peirce and Round Island in Bristol Bay
\$5,000	FWS, Alaska Peninsula National Wildlife Refuge, for data from various colonies along the north and south coasts of the Alaska Peninsula
\$3,000	FWS, Oregon Coastal Refuges, for data from numerous colonies on the Oregon coast
\$12,000	National Park Service, Ventura, CA, for data from several sites within Channel Islands National Park

working full time as principal data manager for the Pacific Seabird Monitoring Database. At the outset, she is developing a data entry system using Microsoft Access(and associated instructional materials for data contributors. As the work progresses, Charla will be available for consultation on any and all issues pertaining to the database. She can be reached by phone at (907) 786-3580 or email (charla_sterne@nbs.gov).

The PSG Seabird Monitoring Committee will meet twice at the PSG-Colonial Waterbird Society conference in Victoria (9:00-11:30 a.m. Wednesday, November 8, and 2:00-4:00 p.m. Friday, November 10). All interested parties are encouraged to attend the meetings and share views on the directions this database project should take. An important task will be to assess priorities and allocate PSG-managed funds for additional contributors to the Pacific Seabird Monitoring Database.

Scott A. Hatch, Coordinator

PSG Recognized at Rally

The Pacific Seabird Group was recently recognized at an Awards and Recognition Rally for National Disability Employment Awareness Month in Fairbanks, Alaska. PSG was one of a hundred local organizations honored for providing vocational opportunities to Alaskans with disabilities. PSG has used Quick Mail, a service that hires people with disabilities, to mail *Pacific Seabirds* for the past four years.

1994 Treasurer's Report

The following is a summary of the Pacific Seabird Group cash flow, financial status, and membership standing for 1994. It is also the last Treasurers Report that I will prepare; as of January 1995, Janet Hodder is the Treasurer for the organization and will prepared the report for 1995.

Income and Expenses

The gross income for 1994 was \$50,981.92, of which \$31,791.50 (62%) was associated with the 1994 (Sacramento) and 1995 (San Diego) Annual Meetings (see below for complete accounting of the San Diego Annual Meeting). Regular and Life Memberships accounted for an additional \$6,618.53 (13%) of the gross income, while interest or

dividend income yielded \$3,178.89 (6%). Although membership usually produces the second highest income total, 1994 was exceptional in that fund-raising efforts produced \$9,363.00, or 18% of our gross income. Of these fund-raising efforts, \$8,815.00 was donated to PSG specifically earmarked for the Baja Initiative, where Mexican and New Zealand biologists were brought to San Diego to attend the Annual Meeting, as well travel to Mexican seabird colonies to discuss predator removal efforts.

Expenses for 1994 totaled \$28,296.14. As with the income, the source for the largest expense was the Annual Meetings where 1994 expenditures totaled \$20,243.86, or 72% of the total expenses. The production of *Pacific Seabirds* (\$4,089.42; 14%), officer and committee expenses (\$2,565.93; 9%) and donations (\$1,050.00; 4%) were the other major sources of expenses for PSG in 1994.

Cash flow for 1994 was similar to that in other years (see past Treasurers Reports), although income over expenses was exceptionally high, totaling \$22,685.78. However, this is somewhat misleading due to the fact that while 54% of the total income for the San Diego Annual Meeting was collected in 1994, only 11% of the expenses were paid out in 1994. If income and expenses associated with the San Diego Annual Meeting were subtracted from the totals (including the \$8,815.00 in donations collected for the Baja Initiative), income over expenses would total only \$1,644.47. This compares with a similar total of \$1,795.68 for 1993 (subtracting income and expenses associated with the Sacramento Annual meeting; see *Pacific Seabirds*, vol. 21(1):12). Income from Regular Membership dues (not Life Membership dues), which is intended to produced enough cash to pay for the normal operations of the organization (officer expenses, *Pacific Seabirds*, taxes, etc.) totaled \$6,438.53 or \$563.75 less than that paid out for PSG operations. This deficit was subsidized from one of any number of sources, including donations, t-shirt sales, interest in our checking accounts, and income (over expenses) from the 1994 Sacramento Annual Meeting (totaling \$8,159.49; see *Pacific Seabirds*, vol. 21(1):10).

Membership

The following totals reflect membership in Pacific Seabird Group as of 31

December 1994, and do not include new members resulting from the San Diego Annual Meeting (1995 membership). The 1994 PSG membership totaled 454, of which 49 members are Life Members, 21 are family members, and 48 are student members. Fifty-five new members joined as a result of the Sacramento Annual Meeting, with 23 being student members. Of the 78 people that joined PSG as a result of registering for the 1993 Seattle Annual Meeting, 40 (51%) renewed their membership in 1994. The 38 members that joined at the Seattle Annual Meeting that did not renew in 1994 represented 59% of the total of 64 members in arrears for 1994. In other words, requiring non-members to join PSG when they register for the annual meeting produced a net gain in membership of 14 people from 1993 to 1994. Although this number may seem trivial it does represent a good recruitment technique for PSG - and if these trends continue, PSG membership will double in only 32 years!

Annual Meeting

The Twenty-second PSG Annual Meeting took place in San Diego, California 10-13 January, 1995. The cash flow from this meeting is detailed on Table 3. The meeting income and expenses occurred in both 1994 and 1995, and therefore, will be reflected in both this and next years Treasurers Report. Income over expenses for the meeting totaled \$2,196.18, and does not include membership income generated through registration of non-members. As with most annual meetings, general meeting expenses were greater than the income received through registration; however, money received through the Mexican Initiative and the Carlsbad, CA USFWS Grants more than compensated the registration deficit.

Endowment Fund

Our endowment fund is losing money, despite the fact that the number of shares we own increased by 370.205 in 1994. The reason the fund is losing money is two-fold. First and most importantly, the value of the fund dropped from \$9.31 per share on 31 December 1993 to \$8.41 per share on 31 December 1994 (although the fund was at \$9.02 per share on 12 September 1995). Second, the main source of new money into

Continued on page 17

Table 1
PACIFIC SEABIRD GROUP
BALANCE SHEET
31 December 1994

Account	Balance	
	1994	1993
Assets	-	\$6,793.80
1994 Local Committee	\$12,220.31	-
¹ 1995 Local Committee	\$11,815.00	-
Baja Initiative	\$188.03	\$353.08
Bulletin Account	\$4,179.92	-
Treasurer's Checking (Charleston)	\$1,253.38	\$5,560.08
Treasurer's Checking (Tenino)	\$604.14	\$441.23
² United Kingdom Savings Account	\$8,355.74	\$7,058.69
Dean Witter - Savings	\$48,735.55	\$45,524.91
³ Dean Witter - Endowment		
	\$87,352.07	\$65,731.79
Total Assets		
Liabilities & Equity		
	\$2,500.00	\$2,500.00
⁴ Liabilities	\$84,852.07	\$63,231.79
Equity		
	\$87,352.07	\$65,731.79
Total Liabilities & Equity		

Footnotes

- ¹ Reflects total assets in account as of 31 December, 1994. See 1995 Annual Meeting Table for complete accounting of the meeting.
- ² The United Kingdom account is managed by Mark Tasker and is used for deposits of membership dues paid in pounds. A conversion rate of US\$1.00 = £0.65 was used to calculate amount in dollars. The 1994 closing balance equaled £392.69. The 1993 closing balance equaled £286.80.
- ³ Totals reflect actual dollar amount deposited or interest earned. Deposits are made by purchasing shares, the dollar value of which fluctuates with the market. On 31 December 1993 we had 4,799.782 shares at \$9.31 per share (\$44,685.97). On 31 December 1994 we had 5,169.987 shares at \$8.41 per share (\$43,479.59). Dean Witter U.S. Government Securities Trust lost roughly 9.7% of its value in 1994. If assets and equity are calculated using number of shares and price per share instead of dollars deposited, the 1994 totals would be \$82,096.11 and \$79,596.11, respectively compared with 1993 totals of \$64,892.85 and \$62,392.85, respectively.
- ⁴ \$2,500.00 allocated to publish the 1993 Marbled Murrelet Symposium

Table 2
PACIFIC SEABIRD GROUP
CASH FLOW REPORT
1 January - 31 December 1994

Income	
Annual Meeting - Sacramento (1994 Totals)	\$17,266.50
¹ Annual Meeting - San Diego (1994 Totals)	\$14,525.00
² Donations	\$9,315.00
Fund Raising: T-shirts	\$48.00
³ Gross Sales	\$30.00
⁴ Interest Earned (checking accounts)	\$31.20
Income Dividend (Dean Witter - Savings)	\$297.05
⁵ Income Dividend (Dean Witter - Endowment)	\$2,850.64
Life Membership Dues - 1994 (paid 1994)	\$90.00
Life Membership Dues - 1995 (paid 1994)	\$90.00
Membership Dues - 1994 (paid in 1994)	\$3,348.61
Membership Dues - 1995 (paid in 1994)	\$3,089.92
Total Income	\$50,981.92
Expenses	
Annual Meeting - Sacramento (1994 Totals)	\$17,076.04
¹ Annual Meeting - San Diego (1994 Totals)	\$2,298.69
⁶ Annual Meeting - Victoria (1994 Totals)	\$869.13
Bank Charges	\$141.93
<i>Pacific Seabirds</i>	\$4,089.42
⁷ Donations	\$1,050.00
ICBP Dues	\$200.00
Officer and Committee Expenses	\$2,565.93
Taxes	\$5.00
Total Expenses	\$28,296.14
Total Income over Expenses	\$22,685.78

Footnotes

- ¹ Total 1994 income and expenses associated with the San Diego Annual Meeting (includes membership and field trip income because Local Committee did not itemize 1994 income). See San Diego Annual Meeting Cash Flow report for itemized income and expenses for entire meeting (1994 and 1995).
- ² Donations associated with Baja Initiative = \$8,815.00
- ³ Sale of back issues of PSG Bulletin
- ⁴ Includes £1.19 (= \$1.83) from UK Account
- ⁵ Dividend reinvested produced 327.551 additional shares of Dean Witter U.S. Government Securities
- ⁶ November 1995 meeting in Victoria, Canada
- ⁷ Dansk Ornitologisk Forening (Philippine seabirds): \$1,000.00; IBRRC (penguin rescue): \$50.00

Table 3
PACIFIC SEABIRD GROUP
Twenty-second Annual Meeting
Catamaran Hotel, San Diego, CA
10-13 January 1994
Cash Flow

¹Income	
Registration (general membership)	\$18,405.00
Registration (from Mexican Initiative Grant)	\$3,125.00
Grant from Carlsbad, CA FWS Office	\$2,000.00
New Membership	\$1,210.00
Boat Charters (Field Trip)	\$1,949.39
Total Income	\$26,689.39
 Expenses	
General Meeting Expenses	\$18,583.21
Boat Charters (Field Trip)	\$2,200.00
Total Expenses	\$20,783.21
 Liabilities	
Return of loan (to PSG General Funds)	\$2,500.00
Membership Income (to PSG General Funds)	\$1,210.00
Total Liabilities	\$3,710.00
 Total Income over Expenses (minus Liabilities)	 \$2,196.18

Footnotes

- ¹ Registration from general membership and Boat Charter income estimated because Local Committee did not provide itemized Income categories. Registration income does not include membership dues (separate category). Registration income from Mexican Initiative Grant used for paying registration and banquet fees for invited Mexican and New Zealander participants

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the fund has been through dividend income rather than through donations and new Life Memberships. In fact, only \$180.00 in Life Membership dues were paid into the endowment in 1994, compared with dividend income of \$2,850.64. Dean Witter U.S. Government Securities is a bond-associated mutual fund, and as such the value of

our entire endowment will fluctuate with the bond-market (and the activities associated with the Federal Reserve). I have been suggesting for the past two years that PSG diversify its endowment portfolio. I have no idea if any member actually reads this Treasurers Report, but if there are members out there that are reading this, I strongly

suggest that you contact your regional representative and the Executive Council and suggest that PSG considers a change in our portfolio. At the current rate, PSG will never reach the goal of \$100,000.00 in our endowment, and therefore we may never make use of our endowment fund.

Kenneth I. Warheit

Dr. Thomas R. Howell Receives Lifetime Achievement Award

In recognition of his continuous and substantial contributions to seabird biology, the membership of the Pacific Seabird Group presented Dr. Thomas Howell with its Lifetime Achievement Award at the banquet of the 22nd Annual Meeting in San Diego. Tom Howell, eminent ornithologist, pioneering seabird biologist, and longtime student of avian extremes knew he was going to be a biologist as early as he can remember. Growing up in New Orleans he was exposed at an early age to seabirds on the gulf coast and at Lake Pontchartrain. His early ornithological life was influenced by George Lowery at Louisiana State University, where he studied as an undergraduate. After a brief tour in the army he went to study with Alden Miller, director of the Museum of Vertebrate Zoology at the University of California at Berkeley. His doctoral research concerned the relationships of the sapsucker group. Near the end of his graduate work in 1949, he was invited to go to UCLA to fill in at the death of the end of his graduate work in 1949 he was invited to go to UCLA to fill in at the death of A.J. Van Rossem. He subsequently was appointed to the faculty and remained there until he retired in 1986. His career has been a distinguished one, serving as chair of the department of zoology from 1963 to 1966, president of the Cooper Ornithological Society from 1964 to 1967, and president of the American Ornithologists' Union from 1983 to 1984. In 1985 he was awarded the Elliot Coues Award from the American Ornithologists' Union for lifetime research accomplishments.

Howell has done distinguished research in several fields ranging from animal behavior to physiological ecology to systematics. He is no stranger to the most rigorous of field work, with an amazing list of study sites including Mexico, Nicaragua, Chile, Borneo, South Africa, Ecuador, Australia, and Ethiopia. In fact, his students used to be vaguely suspicious that he might be some sort of intelligence operative because wars seemed to break out in many of his study areas. His timing was somewhat off when

his trip to Afghanistan to study sandgrouse had to be cancelled due to turmoil there. He is most well known to ornithologists for his work as a member of the AOU check-list committee, a most exclusive group. His longtime work in Central America established him as a leading authority on the birds of Nicaragua. His appointment to the faculty at UCLA facilitated a long and fruitful collaboration with Dr. George Bartholomew, and their work on the environmental physiology of birds resulted in many publications and the establishment of an active subdiscipline. Upon hearing about the bird colony at Midway Atoll during a seminar on the bird-airstrike problem in the 1950s, Howell discovered a field site where he and Bartholomew would go on to do groundbreaking work on seabird energetics, publishing on albatrosses, Bonin Petrels, Wedge-tailed Shearwaters, Christmas Shearwaters, Sooty Terns, Red-tailed Tropicbirds, and Red-footed Boobies. Other papers on the behavior of these species followed throughout the 1970s.

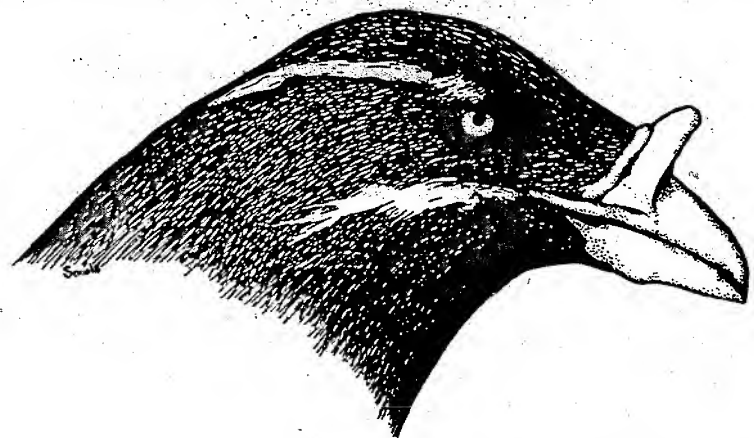
Howell chose to study some of the most bizarre and unusual of birds, and in doing so contributed to our understanding of general principles of evolution. The Grey Gull of Chile is abundant on the coast but only recently had been discovered to nest deep in the Atacama Desert, the driest place on earth. To escape predation the birds were using an area of extremely harsh conditions many miles inland. He actually found

the nesting colony by getting stuck in the sand and being forced to remain overnight, thus witnessing the nocturnal fly-in. His next expedition into the outlandish was his study of the Egyptian Plover. Delving deep into the literature he noted that Erodotos, in 450 BC, had described a bird that actually buried its eggs in the sand during incubation, wetting the sand to help the eggs survive surrounding temperatures in excess of 45°C. Howell also worked at Christmas Island in the Republic of Kiribati studying the Blue-gray Noddy. In 1990, at the International Ornithological Congress in Christchurch New Zealand, he had to break the news to the New Zealanders that the Blue-gray Noddy and not the kiwis had the world's largest egg relative to its body mass, a full 32.6%.

University courses taught by Dr. Howell were always extremely popular at UCLA and invariably had waiting lists. His lectures in advanced ornithology and biology of the vertebrates were current, wide-ranging, and beautifully spoken in his elegant Louisiana accent. In a stroke of instructional genius he taught the avian skeleton by having his students dissect big buckets of fried chicken. He supervised a long string of doctoral students who have gone on to distinguish themselves in ornithology starting with Tom Cade and including Jerry Collier, Gary Stiles, Lloyd Kiff, Kimball Garrett, Jon Atwood, Gilbert Grant, Pat Mock, Bryan Obst, and Judith Hand.

On a trip to the Galapagos Tom met Eleanor and they were married in 1981. They now reside in south Mendocino County on the coast with a view of nesting Western Gulls, Pelagic Cormorants, and Brandt's Cormorants.

Beth Flint



Conservation News

Victory in Kodiak— EVOS Preserves Seabird Colonies

Craig S. Harrison

PSG's efforts to persuade the Exxon Valdez Oil Spill (EVOS) trustees to spend the trust funds to benefit seabirds have begun to pay off. Since 1992, one of PSG's primary recommendations has been the purchase of seabird colonies. On May 23, 1995, EVOS agreed to purchase many of the seabird islands that PSG identified in 1993 in a letter to the Trustee Council and in written testimony to the Merchant Marine Committee of the U.S. House of Representatives. Secretary of the Interior Bruce Babbitt signed agreements with the presidents of two Alaska Native corporations to protect about 152,000 acres of prime habitat near Kodiak Island for seabirds, salmon, bald eagles and other species. In addition to adding colonies on islands and stacks to a wildlife refuge, the habitat purchase protects wintering habitat for sea ducks, cormorants and loons.

The islands included in the purchase agreements are listed in the accompanying table. In addition, three other PSG recommendations, Sundstrom Island, Flat Island and the Trinity Islands, are well on their way toward refuge status.

Seabird Colonies Acquired	Size (acres)
Near Kodiak	
Puffin Island	25
Cathedral Island	25
Amee Island	25
Sheep island	+
John Island	+
Nut Island	+
Cub Island	+

Tim Richardson extended thanks to PSG on behalf of Old Harbor Native Corporation and Akhizok-Kaguyak, Inc. He said "if awards are ever handed out for the 'smallest group-biggest impact' on the Exxon-Valdez restoration process, PSG deserves first place. Time and again we turned to PSG and its members' prior research for biological data that could bolster



Attending the signing ceremony in the Secretary's office in Washington, D.C., were (left to right) Craig S. Harrison, PSG Vice Chair for Conservation, Bruce Babbitt, Secretary of the Interior, George Frampton, Assistant Secretary of the Interior for Fish & Wildlife and Parks, Patrick Noonan, Conservation Fund, and James Rainey, Outdoor Writers' Association of America. Mollie Beattie, director of the U.S. Fish and Wildlife Service, also attended the ceremony.

recognition of the value of Native corporation lands under consideration for acquisition." The agencies and Native corporations used recent and historical information gathered by several PSG members was crucial to evaluate the land purchase, including Patricia Baird, Doug Forsell, Patrick Gould, Craig S. Harrison, Art Sowls, and Dennis Zweifelhofer.

Supreme Court Rules Endangered Species Act Protects Habitat on Private Property

In *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, the U.S. Supreme Court upheld by a 6-3 vote the Department of the Interior's "harm" regulations under the Endangered Species Act (ESA). The Court ruled that Interior did not exceed the authority granted to it by Congress in the ESA when it included "significant . . . modification or degradation" of endangered or threatened species habitat on private property. While not mentioned specifically in the opinion, *Sweet Home* has great significance for marbled murrelets, which are listed as threatened in California, Oregon and Washington. However, there are several proposed amendments to the

ESA now pending in Congress that could undermine this decision.

Sweet Home was brought by a group of small landowners, logging companies and families who depend on forest products industries. They alleged that applying the harm regulation to protect the northern spotted owl and the red-cockaded woodpecker caused them economic harm. Section 9 of the ESA makes it a crime for "any person" to "take" an endangered or threatened species. Interior's regulation (issued during the Reagan Administration) defined the ESA's prohibition against taking as including "significant habitat modification or degradation where it actually kills or injures wildlife."

The plaintiffs argued that in promulgating the regulation Interior exceeded its authority, because Congress did not intend the word "take" to include habitat modification. They pointed out that Congress had actually deleted wording concerning habitat modification from the definition of "take" in the ESA before enacting it. The plaintiffs also contended that the ESA's express authorization for federal funds to buy private land to prevent habitat degradation was the exclusive check against habitat interference on private property.

Because the case came to the Supreme

Court on an appeal of summary judgment, the Court had to assume the following: (1) the loggers did not intend to harm the listed species; (2) the loggers wanted to continue otherwise legal logging activities; and (3) the logging activities would have an unintended, but detrimental effect, on the natural habitats of the birds, which would result in the death or injury to the birds.

Six justices concluded that Interior's interpretation of the ESA was reasonable. They based this conclusion on the ordinary meaning of the word "harm" and the broad purpose of the ESA which supports Interior's prohibition of activities that would result in harms that the ESA was designed to prevent. The Court noted that Congress had granted broad administrative power to Interior regarding the enforcement of the ESA.

The Court also noted that Congress had amended the ESA (section 10) to authorize Interior to issue permits for takings which the ESA would otherwise forbid, "if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." The Court held that this provision supports Interior's decision that activities that are not intended to harm a species such as habitat modification may constitute unlawful taking under the ESA, unless Interior issues a permit for the activity.

While agreeing with the majority, Justice O'Connor filed a concurring opinion in which she stated that in other factual circumstances she might find the regulation to be illegal. Thus, in future cases Justice O'Connor might strike down the application of the rule.

Justice Scalia dissented, and was joined by Chief Justice Rehnquist and Justice Thomas. They stated that the ESA clearly prohibits hunting and killing of endangered species and provides federal lands and federal funds to acquire private property to protect the habitats of endangered species. However, they would not extend the ESA so far as to permit a private property owner to find "his land conscripted to national zoological use."

ALBATROSS BYCATCH

In August 1995, the Australian government listed longline bycatch of seabirds a "key threatening process" under the Com-

monwealth Endangered Species Protection Act of 1992. World Wildlife Fund Australia and the Humane Society International had nominated longline bycatch for this designation.

This regulatory development means that the Australian government must develop a legally-binding plan within three years to address bycatch of seabirds in longline fisheries. An informal plan has already been developed jointly with gov-

ernment and industry, so an official plan may be prepared within a short period of time.

World Wildlife Fund Australia says that since an estimated 15% of the albatross bycatch in the Southern Ocean occurs in Australian waters, the decision should have an enormous influence on the ongoing international negotiations to end this practice and thus a significant global impact.



Silly Seabird Trivia

The International Dateline as a Factor in Asynchronous Hatching in Brown Boobies

Distressed government scientists have found another anthropogenic impact that could lead to extinction of a seabird species. The International Dateline is now thought to be a major factor in asynchronous hatching for colonies located on it. Eggs on one side of a colony typically hatch a full day before the other half. Clutches laid directly on the dateline pose special problems for brown boobies, which lay multiple eggs but raise only one chick.

The bigger chick at these "dateline" colonies has the ability to push its smaller sibling both out of the nest and back into yesterday. Death comes soon to these displaced birds although it is unknown if this is primarily from lack of food or

intense feelings of *deja vu*. In some cases a chick can be evicted the wrong way and end up in tomorrow. No apparent selective advantage is known for these birds and on the contrary they typically die a day earlier than models predict.

The phrase a "day late and a dollar short" was coined by a Spanish naturalist en route from Monterey, California, to Macao in 1799. After his ship ran aground on a coral reef on the dateline, he encountered a brown booby nest and observed a large chick that hatched a day earlier evicting a tiny hatchling from the nest. The phrase refers to the unfortunate circumstance of being on the wrong side of the date line and, hence, the *dolor* (pain, anguish) of being the short or scrawny booby.

Craig S. Harrison and George J. Divoky

Regional Reports

PSG members are urged to send information on their activities to their regional representatives. Addresses and phone numbers of regional representatives are listed on the back inside cover of each issue of Pacific Seabirds.

Alaska/Russia

Magadan Seabird Ornithologists conducted their field work 1995 in the Bering and Okhotsk Seas. In the Bering Sea, Michael Parfenov counted seabird colonies on Aljumska Island and along the Anadyr gulf shores northward from Anadyr town. In the northern Sea of Okhotsk, the monitoring of the seabird populations was continued on Talan and Umara islands. Larisa Zelenskaja worked on Umara Island on productivity of the slaty-backed gulls and pelagic cormorants. On the Talan Island, Alexander and Luba Kondratyev and four assistants studied puffins, parakeet auklets, ancient murrelets, crested auklets, pelagic cormorants, spectacled guillemots, and slaty-backed gulls.

Personnel, led by Vernon Byrd, of the Alaska Maritime Natural Wildlife Refuge (USFWS) conducted and assisted in a vast array of seabird projects in 1995. They are listed below by geographic unit.

GULF OF ALASKA UNIT

St. Lazaria Island - Annual monitoring site. In 1995 data were gathered on populations, productivity, and/or timing of nesting events for fork-tailed storm-petrel, Leach's storm-petrel, pelagic cormorant, glaucous-winged gull, common and thick-billed murre, pigeon guillemot, rhinoceros auklet, and tufted puffin. In addition, food delivered to chicks was monitored for storm-petrels, rhinoceros auklets and tufted puffins. Artificial nest structures were built for storm-petrels and rhinoceros auklets to facilitate future productivity monitoring. Personnel involved were Leslie Slater, Barbara Blackie, Daniel Boone, Mary Cody, Mia Grifalconi, and Susan Roberts.

Forrester Island - Periodic monitoring site. In 1995 data were gathered on popula-

tions and occupancy rate of nest sites for burrow nesting species including Cassin's auklets and rhinoceros auklets. Personnel were Leslie Slater and Naya Brangenberg.

Chisik Island - Periodic monitoring site. In 1995, data were gathered on populations, productivity, and timing of nesting events of black-legged kittiwakes, glaucous-winged gull, common murre, and horned puffins. NBS personnel were John Piatt, Leigh Ochikubo, and Ann Harding. Leslie Slater was also involved.

East Amatuli Island - Annual monitoring site. In 1995, data were gathered on productivity and timing of nesting events for fork-tailed storm-petrels, glaucous-winged gulls, black-legged kittiwakes, common murre, and tufted puffins. Personnel were Arthur Kettle, Margi Blanding, Bill Stahl, Stephanie Zaniga, and Mitch Eaton.

ALASKA PENINSULA UNIT

Semidi Islands - Annual monitoring site. In 1995, data were gathered on populations, productivity, and timing of nesting events for northern fulmars, pelagic cormorants, glaucous-winged gulls, black-legged kittiwakes, common murre, rhinoceros auklets, tufted puffins, and horned puffins. In addition, data were gathered on Aleutian Canada geese. This was a cooperative project between NBS and the refuge; personnel included Josh Adams, Hanna Nevins, Geoff and Laurie Beyersdorf, Scott Hatch, Vernon Byrd, Art Sowls, and others.

Shumagin Islands - The last of the foxes were removed from Simeonof and foxes were confirmed gone from Chernabura following an effort funded by the Exxon Valdez Restoration Program to restore populations of black oystercatchers, pigeon guillemots, and other native birds. Surveys of oystercatchers and guillemots were made to provide a basis for evaluating future increases. Personnel included: Tony Booth, Vernon Byrd, Scott Hatch, Art Sowls, Bill Stahl, Jeff Wraley, Shawn Stephensen, and Steve Ebbert.

Besides the restoration project, single visit surveys of ledge-nesting seabirds were made at 5 sites in the Alaska Peninsula Unit. Personnel included: Daniel Boone, Vernon Byrd, Bill Stahl, Shawn Stephensen, and Steve Ebbert.

Ukolnoi Island - Introduced foxes were

removed to enhance seabird populations. Personnel included: Ed Bailey, Nina Faust, Dave Kehn, and Larry Kuznar.

BERING SEA UNIT

St. Paul Island - Periodic monitoring site. Art Sowls and Vivian Mendenhall continued to monitor populations and/or productivity of ledge-nesting seabirds (northern fulmar, red-faced cormorants, red-legged and black-legged kittiwakes, and common and thick-billed murre). In addition, Art Sowls and Rowley Taylor refined the program that is designed to preclude the introduction of rats on St. Paul. Prey items for least auklets also were collected.

St. George Island - Annual monitoring site. Don and Belinda Dragoo continued monitoring timing of nesting events and productivity of northern fulmars, red-legged kittiwakes, black-legged kittiwakes, common murre, and thick-billed murre. In addition, prey items were collected from least auklets. Dean Kildow, Univ. of Alaska, Fairbanks continued his study of red-legged kittiwakes and he also photographed a number cliff areas to document the distribution of ledge-nesters.

Otter Island - A sample of red-legged and black-legged kittiwake nests were surveyed for reproductive success by Jeff and Laurie Jamison.

Bluff - Annual monitoring site. Ed and Shean Murphy (UAF) continued to monitor populations and productivity of pelagic cormorants, black-legged kittiwakes, and common murre.

CHUKCHI SEA UNIT

Cape Lisburne - Annual monitoring site. Dave Roseneau, Mary Portner, and Peter Chance monitored ledge-nesting seabirds including black-legged kittiwakes and common and thick-billed murre. They gathered information on the timing of nesting events, population trends, and productivity. Prey items were also collected from kittiwakes and murre.

Cape Thompson - Periodic monitoring site. Dave Roseneau, Joel Cooper, Jessica Wachtel, and Terry Cartin monitored ledge-nesting seabirds including black-legged kittiwakes and common and thick-billed murre. They gathered information on the timing of nesting events, population trends, and productivity. Prey items were also collected from kittiwakes and murre.

ALEUTIAN ISLANDS UNIT

Aikta Island - Annual monitoring site. Susan Woodward, Mark Romano, and April Nielson monitored populations, timing of nesting events, productivity and/or prey of Leach's and fork-tailed storm-petrels, pelagic cormorants, glaucous-winged gulls, common and thick-billed murre, and tufted puffins. In addition, John Piatt's crew assessed the nearshore oceanographic conditions and prey distribution. Richard Merrick also conducted transects and sampled fish near Aikta and nearby Ugamak Island as part of his sea lion research. The combined project (called "Seabird, Marine Mammal, and Oceanographic Coordinated Investigations [SMOCI]) was funded by the Fish and Wildlife Service's Bering Sea and Aleutian Islands Ecosystem Team.

Mark Romano also worked on his thesis project designed to evaluate the growth rates of tufted puffin chicks on different diets.

Kasatochi/Koniugi Islands - Annual monitoring sites. Vernon Byrd, Jeff Williams, and others surveyed ledge-nesting seabirds at both islands during one-day visits.

Buldir Island - Annual monitoring site. Julian Fischer, Lisa Meehan, and Mary Ortwerth monitored timing of nesting events, productivity, and /or prey of fork-tailed and Leach's storm-petrels, pelagic cormorants, glaucous-winged gulls, black-legged and red-legged kittiwakes, thick-billed murre, least, whiskered, and crested auklets, and tufted and horned puffins. In addition, Julian Fischer investigated the relative size of burrow entrances used by different species, and the crew continued to monitor adult survival rates of red-legged kittiwakes.

Nizki-Alaid Islands - Jeff Williams and Colin Studds continued to monitor common eider breeding populations and productivity at established plots, incidental to Aleutian Canada goose pair surveys.

Segula Island - Greg Thomson, Laura Olson, Tom Paragi, and Dave McCargo removed the introduced foxes to restore seabird populations. Furthermore, they monitored remnant populations of least and crested auklets.

Shemya Island - Mark Krom continued the Air Force Legacy project to monitor the sex and age structure and trends in populations of waterfowl (e.g., emperor

geese, common eiders, and harlequin ducks) wintering at Shemya.

Adak Island - Joe Meehan, Lisa Sharf, and Nora Wojek continued the Navy Legacy Project to monitor populations of waterfowl (including harlequin ducks) and seabirds (including marbled and Kittlitz's murrelets and tufted puffins). In addition, artificial nest boxes were installed for tufted puffins to facilitate future monitoring.

Agattu Island - Periodic monitoring site. Jeff Williams and Lisa Scharf checked productivity of pelagic cormorants and black-legged kittiwakes during a brief visit.

Attu Island - Jeff Williams and Lisa Scharf checked productivity of black-legged kittiwakes and burrow occupancy rate of tufted puffins during a brief visit.

GENERAL AMNWR WORK

Shipwreck Response - Art Sows, Tony DeGange, and Laurie Fairchild drafted a plan for emergency response to ship wrecks to try to preclude the introduction of rats on islands where they do not now occur.

Pribilof Rat Prevention Program - Art Sows continued to work with local people in the Pribilofs to maintain the system of rat bait stations placed to preclude rats from becoming established on St. George and St. Paul from ships in the harbors. In addition, training courses in pesticide application and rat prevention were held in Dutch Harbor, Homer, Anchorage, and the Pribilofs.

Tigla surveys - Kevin Bell coordinated observations of short-tailed albatrosses and concentrations of whiskered auklets as the ship traveled all summer in southwestern Alaska.

Genetics sampling - Samples were collected of one or more species of seabirds at St. Lazaria, the Semidis, Aikta, Buldir, Attu, Cape Thompson, and Cape Lisburne for Vicki Friesen's genetics studies.

National Marine Fisheries Service Surveys - As part of sea lion research in the eastern Aleutian Islands and in the western Gulf of Alaska, Richard Merrick and his crew conducted seabird surveys on transects near selected sea lion rookeries.

Lisa Haggblom (Togiak NWR, USFWS) and others monitored productivity and population of black-legged kittiwakes, common murre, and pelagic cor-

morants at Cape Peirce from 22 May-30 August, 1995. Stomach contents were collected from 30 kittiwakes and 1 murre.

Denny Zwiefelhofer (Kodiak NWR, USFWS) and others conducted the 16th year of population trend surveys, monitoring seabird/seaduck wintering in selected bays of Kodiak Island. They also conducted harlequin duck breeding population and productivity surveys on over 900 km of Kodiak NWR shoreline adjacent to Shelikof Straits (Exxon Oil Spill Impact Area). Denny also provided logistical and technical support for Katmai National Park coastal ecosystem biologist's Buddy Goatcher who documented coastal distribution and abundance of marine bird resources.

Tina Moran (Yukon Delta NWR, USFWS) continued a multi-year study of spectacled eider nesting ecology and survivorship on Kigigak Island. Chris Harwood and Brian McCaffery completed their second consecutive breeding pair survey of harlequin ducks in the southern Kilbuck Mountains, as well as pilot study on harlequin breeding phenology. In addition, Brian completed a harlequin brood survey in the Kisaralik River watershed.

Tony Degange (ES, USFWS) wrote a draft Conservation Assessment for the marbled murrelet in Southeast Alaska. The assessment summarizes the current state of knowledge of marbled murrelets in Southeast Alaska and provides research recommendations and discusses conservation strategies. The assessment was prepared under a Memorandum of Agreement between the Fish and Wildlife Service, Forest Service and Alaska Department of Fish and Game and will be used in the revision of the Tongass National Forest Land Management Plan.

Lindsey Hayes, Ted Spencer, Dominic Malenfant, and Dave Tessler (USFWS and UAF) continued a study of the breeding and feeding ecology of pigeon guillemots in Prince William Sound as part of the APEX project, which is designed to investigate food limitation in seabirds.

Kathy Kuletz and Debbie Flint, (MBM, USFWS) together with a large field crew continued to work on the development of a productivity index for murrelets in Prince William Sound.

David Irons, Rob Suryan, Kirk Lenington, Jared Gerstein, Kyle Payton, Cynthia Restrepo, John Ryder, Teresa

Sauer, Shawn Wolfe, (MBM, USFWS and UAF) studied reproductive and foraging ecology of black-legged kittiwakes in Prince William Sound as part of the APEX project, which is designed to investigate food limitation in seabirds.

Greg Golet and David Irons (MBM, USFWS) with help from several people mentioned above, completed fieldwork on their cost of reproduction in black-legged kittiwakes study, and monitored kittiwake colonies in Prince William Sound.

Pam Seiser, Shawn Stephensen and David Irons (MBM, USFWS) monitored populations and productivity of black-legged kittiwakes, pelagic cormorants, and red faced cormorants in Chiniak Bay, Kodiak Island.

Bill Ostrand, John Maniscalco (MBM, USFWS) studied seabird/forage fish interactions in Prince William Sound as part of the APEX project, which is designed to investigate food limitation in seabirds.

Beverly Agler and Steve Kendall (MBM, USFWS) finished several reports on distribution and abundance of seabirds and assisted on a murrelet productivity study.

Scott Hatch (NBS) had several studies ongoing in 1995: continued seabird monitoring on Middleton Island (Verena Day et al.), including some preliminary trials with controlled feeding of adult kittiwakes at artificial nest sites; continued seabird monitoring on the Semidi Islands (Josh Adams and Hannahrose Nevins), marking the 20th anniversary of (almost annual) seabird observations in that area; funded Alaska Maritime National Wildlife Refuge (AMNWR) staff to conduct seabird monitoring at capes Lisburne and Thompson (Dave Roseneau et al.); conducted satellite telemetry in murres and puffins, surgically implanting 35 transmitters—10 each in murres (common and thick-billed) at the Barren Islands, Cape Lisburne, and Cape Thompson, and 5 in tufted puffins at the Barren Islands; with other members of the PSG Seabird Monitoring Committee, continued software development and data entry for the Pacific Seabird Monitoring Database. Established a cooperative agreement between the National Biological Service (NBS) and PSG and interagency agreements between NBS and seven different offices of the Fish and Wildlife Service and National Park

Service for data entry during fiscal year 1996.

Paul Meyers is assisting with the satellite telemetry project, and Charla Sterne will be working on development of the Pacific Seabird Monitoring Database.

Dan Esler (NBS), Tim Bowman (MBM, USFWS) and Karen Laing (MBM, USFWS) initiated the first season of a multiyear study of harlequin ducks in Prince William Sound, Alaska. The study is designed to assess harlequin duck recovery from the Exxon Valdez oil spill through measures of overwinter survival, body condition during molt, a suite of blood and tissue assays, winter habitat use, and food availability.

Dan Rosenberg (Alaska Department of Fish and Game) surveyed harlequin duck populations in Prince William Sound in 1995 to assess the extent of recovery of ducks inhabiting oiled areas and determine if low reproductive success resulted in changes in age and sex structure of the population.

Betty Anderson, Charles (Rick) Johnson, and Bob Ritchie, (ABR, Inc.), continued their studies of spectacled eiders on the North Slope of Alaska, in the Kuparuk Oilfield, on the Colville River Delta, and at other locations on the central coastal plain. Study components included aerial surveys for breeding pairs and broods, nest searches, and monitoring nesting success.

Bob Day (ABR, Inc.) initiated a study of nesting kittlitz's murrelets at U.S. Air Force remote sites in western Alaska. Bob and Alice Stickney searched four sites and found one nest and one suspected nest at one site and observed an adult leaving an inland area at a second site.

Bob Ritchie, John Rose, and Alice Stickney (ABR Inc.) also continued their long-term monitoring studies on the North Slope.

Alan Springer continued his work on the Pribilof Islands looking at diets of murres and kittiwakes.

CIRCUMPOLAR SEABIRD WORKING GROUP

The first CSWG meeting occurred prior to the PSG meeting in Sacramento in 1994. The second CSWG meeting occurred March 21-23, 1995, in Oslo, Norway. Vidar Bakken, Norwegian CSWG representative, and the Norwegian Polar Institute hosted the meeting at the Institute. Eleven repre-

sentatives from seven of eight countries (Sweden was not represented) signatory to the Declaration on the Protection of the Arctic Environment (AEPS) attended.

Where CSWG's first meeting in 1994 was highlighted by organizational issues and identifying high priority seabird conservation issues of mutual concern, the second meeting was punctuated by detailed country-by-country discussions of several key issues or projects such as: 1) international murre conservation strategy; 2) Circumpolar seabird hunting and harvest project; 3) incidental mortality of seabirds in commercial fisheries in the Arctic; 4) circumpolar seabird colony catalog database; 5) circumpolar eider conservation strategy, and 6) seabird-human disturbance guidelines. Circumpolar seabird conservation issues and several other topics were also discussed.

CSWG's 1995-96 Action Plan is primarily oriented around highly visible seabird management issues and to a lesser extent toward research activities. All issues are of mutual interest to all arctic countries.

The CSWG is proposing to complete several major products in 1996. Specifically, they are poised to complete the following:

- The International Murre Conservation Strategy
- The final proposal for the Circumpolar Seabird Colony Catalog project.
- A Conservation of Arctic Flora and Fauna (CAFF) report and hopefully refereed publication on the "Harvest of Seabirds in the Arctic."
- A CAFF report on "Guidelines to Reduce Human Disturbance at Seabird Colonies"
- A second edition of the Circumpolar Seabird Bulletin
- Final proposals for a Circumpolar Murre Banding Network and Circumpolar Murre Monitoring Project.
- A major issue paper, and hopefully a refereed publication, on "Eider Conservation Concerns in the Arctic," and a proposal for an "Eider Conservation Strategy."
- Lastly, CSWG will be conducting its 3rd meeting in Nuuk in April 1996.
- CSWG Meeting Reports for 1994 and 1995 are available from Kent Wohl, Chair, CSWG, at U.S. Fish and Wildlife Service, 1011 E. Tudor Rd., Anchorage, AK 99503.

David Irons

Canada

As last year, a group of seabird people associated with the Wildlife Chair at Simon Fraser University met on 27 September to exchange information on the year's results. After Tony Gaston introduced proceedings, there were a series of talks on work being carried out by the Wildlife Chair at Simon Fraser. Fred Cooke set the context by explaining that the focus would be on demography. Doug Bertram gave details of the ongoing research programme at Triangle Island, which is concentrating on survival rates, reproductive success, nestling growth, and diet studies on Cassin's Auklet, Rhinoceros Auklet and Tufted Puffin. Results from 1995 were not yet available, but the Tufted Puffins deserted en masse in mid-August, after normal breeding to that point. Most chicks starved. Rhinoceros Auklets bred successfully, de-

living mainly sandlance to their chicks. Wendy Beauchamp described mist-netting studies of Marbled Murrelets. 189 were caught in 1995, as opposed to 176 in 1994. There were 7 retraps from the previous year. Irene Manley, associated with the same project, found two active Marbled Murrelet nests and five inactive ones, in the course of surveying 22 sites in the coastal Douglas Fir and Mountain Hemlock Zones. Activity was higher in the latter zone. The Marbled Murrelet programme also involves Andy Derocher and Gary Kaiser. Ann Duffy then described the work of the newly formed Centre for Coastal Health, set up jointly by the Vancouver Aquarium, Western College of Veterinary Medicine and the UBC Faculty of Medicine. The Centre will study all aspects of coastal health: social, economic, medical, and environmental. Seabird issues in which the Centre might be involved are disease outbreaks, die-offs

and chronic reduced productivity.

Mary Anne Hughes, University of BC, described her work on osmoregulation in birds. She introduced us to several peculiarities of seabirds, which have kidneys on average twice the size of land-birds and no rectal caecae. Glomerula filtration rates are similar in the two groups. The domestic duck, which acts as a surrogate for seabirds in many physiological investigations, has salt glands, like a seabird, but also has caecae, like a chicken. Male ducks are less salt-tolerant than females. Hughes notes that BMRs tend to be higher in birds with salt glands. She would be interested to collaborate with anyone who is working on seabirds and would like to investigate osmoregulation.

Jim Ludwig painted a rather alarming picture of organochlorine levels in albatrosses at Midway Island. Levels of some compounds approach the levels at which

Attending

Christine Adkins, Zoology, UBC
Wendy Beauchamp, Simon Fraser U.
Doug Bertram, Wildlife Chair, Simon Fraser U.
Alan Burger, Biology, U. Victoria
Julian Christians, Simon Fraser U.
James Clowater, Wildlife Chair, Simon Fraser U.
Fred Cooke, Wildlife Chair, Simon Fraser U.
Toby Crocker, Simon Fraser U.
Gil Davoren, Biology, U. Victoria
Sharon Dechesne, Biology, U. Victoria
Coastal Forest Management
Andy Derocher, BC Ministry of Forests
Anne Duffy, Centre for Coastal Health, UBC
Tony Gaston, National Wildlife Research Centre
Stephanie Hazlitt, Simon Fraser U.
Kathy Heise, Zoology, UBC
Stephanie Hughes, Arboretum Access, U. Victoria
Gary Kaiser, Pacific Wildlife Research Centre
Hugh Knechtel, Simon Fraser U.
Dov Lank, SFU/CWS
Cecilia Betancourt-Lougheed & Lynn Lougheed
Jim Ludwig, SERE Group Ltd
Andrea MacCharles, Simon Fraser U.
Yolande Morbey, Simon Fraser U.
Julia Parrish, Biology, U. of Washington
Brett Sander, Biology, Simon Fraser U.
Connie Smith, Simon Fraser U.
Terry Sullivan, Animal Science, UBC
Ross Vennesland, Simon Fraser U.
Michael Wiley, Simon Fraser U.
Tony Williams, Wildlife Chair, SFU
Ron Ydenberg, Simon Fraser U.

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deformities and eggshell-thinning can occur. The source seems to be Asia [although we should note that DDT continued to be used in Hawaii after its banning in the continental USA - Ed.J].

Julia Parrish (a guest from south of the border) visited Triangle Island, BC, in 1995 to observe Common Murres. She would like to continue this work next season. Alan Burger described a number of projects ongoing at University of Victoria. The Vancouver Island Shelf Project, funded by the Nestucca Trustees, measures seabirds, prey and ocean temperature/salinity on monthly 140 km transects across the Vancouver Island shelf. In the Ursus Valley, Clayquot Sound, radar was used in conjunction with standard call-counts to monitor flights of Marbled Murrelets. The main finding from the radar suggested that many birds are missed by standard techniques. Up to 1000 birds appeared to be using the valley. At-sea surveys for Marbled Murrelets were also carried out every 2 weeks in Barclay Sound. These are helping to define habitat preferences. The beached bird surveys that have been carried out since 1989 are no longer being funded, but amateurs continue to do the work. This should be a sensitive monitoring technique. Also from U. Vic., Gail Davoren outlined her research on Rhinoceros Auklets breeding at Seabird Rocks, Barclay Sound. She hopes to study how they respond to prey availability and may employ radio-telemetry next year.

Sharon Dechesne described her work in Haida Gwaii for Coastal Forest Management, including the discovery of a Marbled Murrelet nest above a logging road. She remains interested in auk vocalizations. Gary Kaiser gave a very brief description of the progress of the Langara Island rat-eradication project. Most rats were eliminated by a huge poison campaign in late July, but a few bait-stations remained active at the time of the meeting and eradication attempts were continuing.

In the afternoon, people got together to discuss improved monitoring of BC seabirds. The main themes of the discussion were (a) the need for better communications with fisheries biologists and oceanographers (b) the usefulness of setting up an electronic communications network. The following were concluded: 1) next year's meeting will be in November, 2) the group will initiate a compendium of monitoring

techniques used in BC, via an electronic mail group. This will be organized by Tony Williams and (when he gets to SFU) Doug Bertram. A WWW Web page will be set up, 3) next year's session will include a brief symposium exploring the potential for collaboration with oceanographers and marine biologists. If anyone wants to attend next year's meeting, please get in touch with your Canadian rep (AJG). Many thanks to the Wildlife Chair for the buns and coffee.

Among those that did not manage to make it to SFU, Paul Jones wrote to say that "Friends of Caren" continued to monitor Marbled Murrelet activity in the Caren Range this year, although no active nests were found. Overall detections were lower than previous years. In addition, a large body of observations (470 days) has been accumulated on at-sea behaviour of Marbled Murrelets at Middlepoint Bight. Of special interest is the relationship between Marbled Murrelets and Bonaparte's Gulls while foraging.

Other notes: some recent seabird theses from Canada: Michael Rodway, Dept. of Biology, Memorial University, St. John's, Newfoundland: M. Sc. Intra-colony variation in breeding success of Atlantic Puffins: an application of habitat selection theory. Garry Donaldson, Dept. of Biology, University of Ottawa, Ottawa, Ontario: M. Sc. Winter distribution and pre-breeding survival of the Thick-billed Murre, *Uria lomvia*, from the Northwest Atlantic. Implications for management of the Newfoundland murre hunt. Yolande Morbey, Dept. of Biology, Simon Fraser University, Burnaby, BC: M. Sc. Fledging variation and the application of fledging models to the behaviour of Cassin's Auklets at Triangle Island, B.C.

Tony Gaston

Washington/Oregon

Marbled Murrelet Habitat Associations on State Lands in Oregon - 1995

The goal of this research in 1995 was to find and describe Marbled Murrelet nest sites in the Elliott and Tillamook State Forests in western Oregon, an area where limited research on the murrelet has been conducted. Tree climbing was used to locate nests in plots established within each study site. Two different methods of sampling were implemented: intensive tree

climbing and paired-plot tree climbing. For intensive tree climbing, study sites were divided into two zones relative to the mature forest-managed forest interface: the forest edge and forest interior. Within each zone, five 40-m radius (0.5 ha) sample plots were established. For the less intensive sampling, two climbing plots (each 40-m radius) were located in each stand. One plot was centered on a previously established vegetation sampling station and one was randomly located in the same stand. Twelve stands (8 occupied and 4 unoccupied) were selected on the Elliott State Forest for establishing paired tree climbing plots. One occupied stand was selected on the Tillamook State Forest for conducting intensive tree climbing. Three additional occupied sites on the Tillamook were chosen for establishing paired tree climbing plots.

To date 12 old murrelet nests have been located. In addition an active nest was monitored and the chick successfully fledged in 18 August. These nests were in mature (80-199 yrs) and old-growth forests on large platforms (>14 cm diameter) in large (>76 cm dbh) trees. Nine of the 13 nests were located in managed forests that were thinned, high-graded, or selectively logged 30-100 years ago. Within these managed stands, two nests were found in remnant old-growth (>200 yrs) trees and seven were in mature trees with large platforms created by mistletoe, disease, damage or in open growing conditions.

Additional tree climbing will be conducted in paired plots on the Elliott State Forest in September. A paper on this research will be presented at the PSG meetings in November.

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Northern California

Paul Kelly and Dave Jessup (California Department of Fish and Game) continue to oversee a variety of contracts for the Department's Oil spill Response and Prevention Program. The following individuals or organizations are under contract to CDFG-OSPR to collect baseline information on California marine wildlife resources and develop injury assessment protocols for future oil spills: **Harry Carter** (NBS); **Dan Anderson** (UCD); **Mike Bonnell**, **Ken Briggs**, **Breck Tyler**, and **Dave Lewis** (UCSC); University of California School of Veterinary Medicine; **Hobbs Seaworld Inc.**; and **Point Reyes Bird Observatory** (for more details see below, under each organization or individual).

Esther Burkett, California Department of Fish and Game, reports that a **Marbled Murrelet Research Cooperative** has been formed. She can be contacted (916-654-4273) for more information on team members, projects, and reports. Some participants in the **Marbled Murrelet** recovery planning process identified a need for more intensive research on the **Santa Cruz Mountains** population of murrelets. The small size and geographical isolation of this population makes it particularly vulnerable to extirpation. The threat of an oil spill or catastrophic fire warrants a better understanding of this population and factors affecting its viability.

The Recovery Plan has reiterated the importance of cooperative research efforts in order to foster working relationships, data sharing, and more comprehensive research efforts. Murrelet research can be expensive, but the formation of team allows for cost sharing and the use of in-kind services.

This research cooperative is called the **Central California Marbled Murrelet Research Group (CCMMRG)** and **Dr. Steven Beissinger** of Yale University is the team leader. There are many cooperators including private timber companies and foundations, the Department's of Fish and Game and Parks and Recreation, the U. S. Fish and Wildlife Service, and the **Santa Cruz Mountains Marbled Murrelet Group**. The team is studying the distribution, abundance, and productivity of murrelets from Half Moon to Monterey bays, with a particular emphasis on **Ano Nuevo State** re-

serve and **Big Basin Redwoods State Park**. Field work began in April 1995 and is partially funded for the next two years. A long term effort is anticipated.

Scott Newman, University of California School of Veterinary Medicine, is in the process of establishing baseline blood reference ranges for hematology and clinical pathology parameters routinely utilized to measure the health of avian patients. Data collection focuses on species of special concern due to declining populations (**Rhinoceros Auklets**, **Ashy Storm-petrels**, **Xantus' Murrelets**, **Double-crested Cormorants**), **Brown Pelicans**, and species which have a high likelihood of becoming oiled in a spill on the California coast (**Common Murre**, **Pelagic Cormorants**, **Brandt's Cormorants**, **Cassin's Auklets**, **Pigeon Guillemots**, and **Western Gulls**). Samples have been collected from 9 of the 11 species, of which 7 were obtained in California. **Double-crested Cormorant** samples were obtained via **Al Clark** (USFWS, Willapa NWR Complex, Kathlamet, WA) and **Rhinoceros Auklet** samples via **Kenneth Warheit** (Washington State Habitat Program, Olympia, WA), and **Ulrich Wilson** (USFWS, Washington Coastal Refuges Office, Sequim, WA). Samples were collected from **American White Pelicans** near Clear Lake, CA with the help of **Dan Anderson**, UC-Davis. Intraspecific comparisons will be made between different age classes and different geographical locations. This data will be useful for oil spill triage decisions, monitoring bird health during treatment, determining when birds should be released, and to help diagnose the etiology of marine bird die-offs which have occurred annually for the past few years on the west coast.

Newman is conducting a collaborative project with NBS (California Pacific Science Center, Dixon, CA) biologists **Harry Carter**, **Darrel Whitworth**, **Gerry McChesney**, **Bill McIver**, and **John Takekawa**, collecting blood samples and measuring blood parameters (as indicators of stress) from **Xantus' Murrelets** which have undergone different handling protocols. These handling protocols include animal restraint, manipulation, measurement of morphological parameters, gastric lavage, and blood collection. The objective of this study is to determine whether different handling protocols are causing different levels of stress in birds. Ultimately, they hope to

provide recommendations which will decrease the amount of stress experienced by seabirds when routine banding and marking (eggs or nests) projects are undertaken. (Also see under **Dan Anderson**, UC-Davis and NBS, Dixon, CA below.)

Dr. Andrew Thompson of Santa Clara University, with support from the **Elkhorn Slough Volunteer Program**, is studying how sexual selection operates in monogamous birds, using the **Plain Titmouse** as an example.

Pam Brynes is continuing her Master's Thesis through **Moss Landing Marine Laboratories (MLML)** on egret foraging behavior, correlating habitat use with prey populations.

Jennifer Parkin, MLML, is conducting her thesis on a new **Caspian Tern** rookery in the Reserve restored marsh.

Andrew De Vogelaere and **Steven Kimple**, ESNERR, continue to monitor the mixed **Great Egret** and **Great Blue Heron** rookery on the Reserve, using remote photography from a small balloon.

Mark Silberstein is working with **Richard Zimmerman** and **Randy Alberti**, Hopkins Marine Station, on a seagrass restoration and biology project in the **Elkhorn Slough Reserve**.

Craig Strong and researchers from **Mad River Biologists** completed seabird surveys along the northern California Coast, with a focus on **Marbled Murrelet** population and productivity assessment. **Craig Strong**, **Mark Fisher**, and **Dave Fix** also surveyed the Oregon coast for the fourth year of **Marbled Murrelet** studies there for the Oregon Department of Fish and Wildlife. With California Department of Fish and Game, **Craig Strong** and **Ben Becker** carried out seabird surveys of the **San Mateo** and **Santa Cruz** coast, also emphasizing **Marbled Murrelet** population, distribution, and productivity assessment.

Deborah Jaques finished her MS in Ecology at UC-Davis with completion of her thesis on range expansion and roosting ecology of non-breeding **Brown Pelicans**. Deborah continues to monitor non-breeding **Brown Pelicans** in northern California and conducted a survey of roost sites in Oregon and Washington this fall. Jaques and Strong are nearing completion of a second report to California Department of Parks and Recreation on coastal waterbird and marine mammal use of state parklands.

Jim Harvey and **John Mason** (Moss

Landing Marine Laboratory) continue to monitor the monthly distribution and abundance of seabirds in Monterey Bay using strip survey methodology. One fixed transect and two random transects are attempted each month. These data will be compared with previous years, and with oceanographic conditions. Accompanying these transects are weekly surveys of three 2-km sections of beach. Beachcast bird number and species will be compared with the data from ocean transects. They are also conducting seabird and mammal surveys at the Naval Disposal Site west of the Farallon Islands to determine the effect of dredge disposal on distribution and abundance of birds and mammals in this area.

Student Jamie Scholten is examining the nesting ecology, behaviors, and ocean distribution of cormorants off Monterey.

National Biological Service (California Pacific Science Center, Dixon Field Station) biologists Harry Carter, Darrell Whitworth, Bill McIver, Gerry McChesney and John Bulger, U.S. Navy (Naval Air Weapons Station Pt. Mugu) biologist Tom Keeney, and Minerals Management Service biologist Mark Pierson conducted surveys of Xantus' Murrelets and other seabirds in the Channel Islands, southern California, and at the Islas Los Coronados, Mexico. Several important murrelet nesting areas were discovered at Santa Catalina and Santa Cruz islands. Large numbers were found at the Islas Los Coronados, despite concerns about impacts by introduced mammals. The breeding biology and success of Ashy Storm-petrels were studied at Santa Cruz Island. Surveys of Brandt's Cormorants and Western Gulls were conducted at San Nicolas Island. This work was funded by the U.S. Navy (DoD Legacy Resources Management Program), U.S. Fish and Wildlife Service, California Department of Fish and Game, and the Channel Islands National Marine Sanctuary. All work was conducted in cooperation with the Naval Air Weapons Station Pt. Mugu.

NBS (CPSC, Vallejo and Dixon Field Stations) biologists Darrell Whitworth, John Takekawa, Harry Carter, and U.S. Navy biologist Tom Keeney conducted the first year of a radiotelemetry project on Xantus' Murrelets. This project was conducted in cooperation with Scott Newman (Wildlife Veterinarian, University of California Davis - Wildlife Health Center) who

helped develop radio attachment techniques and studied aspects of health and stress through blood parameters (see also under Newman). Birds were captured using dipnets and spotlights on the water at night off Santa Barbara Island. Radios were attached using glue and sutures. Radio signals were detected from an island tower and from overflights in the Southern California Bight up to 100 km from Santa Barbara Island. This work was funded and conducted cooperatively with the U.S. Navy (Naval Air Warfare Center Weapons Division Seatest Range, Naval Air Weapons Station Pt. Mugu, and the DoD Legacy Resource Management Program) and California Department of Fish and Game (Office of Oil Spill Prevention and Response), with additional assistance from other agencies.

NBS (CPSC) biologists Harry Carter, Gerry McChesney, Darrell Whitworth and Bill McIver and USFWS (San Francisco Bay National Wildlife Refuge) biologists Jean Takekawa and Michael Parker continued annual surveys for Common Murres, Brandt's Cormorants, and Double-crested Cormorants in 1995. Almost all coastal colonies in California were surveyed using aerial photography. Funding has been provided by the California Department of Fish and Game (Office of Oil Spill Prevention and Response), the U.S. Fish and Wildlife Service, and U.S. Navy (DoD Legacy Resource Management Program).

NBS (CPSC) biologist Gerry McChesney is in the write-up phase of his Master's thesis on the breeding biology of Brandt's Cormorants at San Nicolas Island, through California State University Sacramento. This work has been funded by the U.S. Navy (DoD Legacy Resources Management Program) and is being conducted in cooperation with the Naval Air Weapons Station Pt. Mugu).

A multi-institution investigation is underway related to a mysterious die off of Common Murres on the central California coast from Sonoma County to Monterey County from June to September 1995. Hundreds of carcasses were recorded on beaches by the Beach Watch program operated by the Gulf of the Farallones National Marine Sanctuary (Jan Rolletto - Coordinator) as well as additional carcass surveys conducted by NBS (CPSC) biologists Harry Carter, Deborah Carter, Darrell Whitworth, Bill

McIver, and John Gilardi). Hundreds of sick birds also were interned at several rehabilitation centers and many died shortly thereafter. Altogether, at least a few thousand birds were probably killed. Wildlife health biologists are investigating the cause of the die off, including efforts by: Lynne Creekmore and Chris Franson (NBS, National Wildlife Health Center, Madison, Wisconsin), Scott Newman and John Trupkiewicz (University of California Davis - Wildlife Health Center), Pam Swift and Jack Ames (California Department of Fish and Game), Mike Murray (Monterey Bay Aquarium), and numerous wildlife rehabilitation centers. Necropsies, blood samples, and tissue samples have been collected but preliminary findings have not yet identified a cause. Further diagnostic testing will be conducted in fall 1995. This is the largest seabird die off (excepting oil spills) ever recorded in California. Concurrent with the murre die off, roughly 14-16 Sea Otters were found dead on Monterey Bay beaches. A smaller, local die off of Cassin's Auklets in March in the Channel Islands was observed by NBS (CPSC) during other studies and may be related to winter storms.

Roger Hothem (NBS/Pacific Research Group) is summarizing studies on contaminants and reproductive success in Black-crowned Night Herons in San Francisco Bay. Carolyn Marn and Joe Skorupa are writing results of reproductive success and movement studies in many species of waterfowl and shorebirds in the Tulare Basin in agricultural drainwater areas.

Harry Ohlendorf continues to specialize in wildlife toxicology with a special interest in the effects of contaminants on aquatic birds. Several current projects involve ecological risk assessments at Superfund sites and other locations where contaminants are of concern because of their potential effects on birds (as well as other animals and plants). He is also working on projects related to broader issues of wetlands and environmental enhancement.

Sarah Allen, Point Reyes National Seashore, is overseeing monitoring and assessment of the effects of the Wayfarer incident. This incident involved a boat that crashed onto the Point Reyes Headlands during the seabird breeding season. The disturbance associated with the crash and subsequent rescue of the skipper disrupted Common Murre breeding in the area.

Monitoring is being conducted by the Point Reyes Bird Observatory.

POINT REYES BIRD OBSERVATORY

A. Farallon National Wildlife Refuge and Gulf of the Farallones. Bill Sydeman, Peter Pyle, David Ainley, and Elizabeth McLaren continue to monitor breeding seabirds and marine mammals at the Farallon Islands. They are continuing demographic and dietary studies on Western Gulls, Brandt's Cormorants, Cassin's Auklets, Common Murres, Pigeon Guillemots, and Rhinoceros Auklets on Farallon NWR. Winter colony attendance by Common Murres and Western Gulls also is being investigated. Sydeman, Walter Jarman, McLaren, Pyle, Keith Hobson, and Lloyd Kiff are summarizing studies of contaminant levels, trophic structure, and bioaccumulation of contaminants in marine birds and mammals in the Gulf of the Farallones. Sydeman and Nadav Nur are developing a spatially explicit population model for Common Murres in California with funds from the California Department of Fish and Game Office of Oil Spill Prevention and Response. Sydeman and Tom Schuster continue to work on developing the Oil Spill Response Team for California.

David Ainley, Larry Spear, and Sarah Allen continue to investigate pelagic distribution of seabirds in relation to prey and other habitat features in central California, using GIS and remote sensing techniques. The study is being conducted in conjunction with the National Marine Sanctuary and National Marine Fisheries Service. They devised a separate report on the Marbled Murrelet for the U. S. Forest Service.

Sydeman and Michelle Hester are restoring and monitoring the Rhinoceros Auklet population on Ano Nuevo Island. Point Reyes Bird Observatory will be preparing a status report on the Ashy Storm-petrel, through a grant from the National Biological Service.

B. Coast and Estuaries. Gary Page, Lynne Stenzel, Dave Shuford, and Janet Kjelson continue a shorebird ecology project, coordinating spring, fall, and winter shorebird surveys in coastal and interior wetlands of all states west of the Rocky Mountains. Staff and research associates continue to monitor breeding success and juvenile dis-

persal of Snowy Plovers along Monterey Bay. They are also conducting winter population surveys along the west coast of the United States. John and Ricky Warriner and Gary Page are participating in a project to protect plover nests from mammalian (red fox) predation using predator exclosures (see under USFWS-SFBNWR).

D. Mono Lake. Christine King and Dave Shuford continue studying breeding success and population size of California Gulls.

E. Other Regions. David Ainley, Larry Spear, and Chris Ribic (University of Wisconsin) continue studies of pelagic seabird communities in the eastern equatorial Pacific. Ainley and Richard Podolsky (with Greg Spencer and Leah DeForest) are investigating population stability and effects of human-induced mortality on Newell's Shearwaters and Dark-rumped Petrels on Kauai; Nadav Nur is helping with development of demographic models of these species.

David Ainley joined Harvey and Associates in Alviso, California in August 1995. He will continue his seabird research in Antarctica, as well as other areas. He will also assist Harvey and Associates with seabird and waterbird research and monitoring in San Francisco Bay and central California.

Santa Cruz Mountains Murrelet Group

The Singers, working in cooperation with David Suddjian and a team of volunteer biologists, continue to investigate new and old Marbled Murrelet nest sites and associated flight and vocalization behavior in Big Basin Redwoods State Park. With the support from the California Department of Fish and Game and San Francisco State University, Steve Singer is continuing a project that will locate all areas of remaining old-growth forest in the Santa Cruz Mountains and survey as many as possible for murrelet activity.

San Francisco Bay Bird Observatory

SFBBO continues to monitor colonial nesting birds in south San Francisco Bay. They conducted shorebird surveys during peak migration periods in south San Francisco Bay, as an extension to the Pacific Flyway shorebird survey effort initiated by the PRBO.

USFWS/San Francisco Bay NWR

Jean Takekawa and Mike Parker participated in aerial seabird survey throughout central and northern California as part of a coastal California seabird survey. In addition, Parker will be initiating the Apex Houston seabird restoration project in Fall 1995. The Refuge will be working cooperatively with Humboldt State University, National Audubon Society, and the Point Reyes Bird Observatory on this restoration effort.

Parker and Erin Fernandez continued to work with PRBO to evaluate the effectiveness of predator exclosures to protect Snowy Plover nests at the Salinas River NWR and several other sites throughout the Monterey Bay area. Predator management continued in early 1995, including Fort Ord. Work was conducted by USDA-Animal Damage Control and the Refuge. Funding was provided by USFWS, State Parks, and U.S. Army - Fort Ord. Results indicated that the program was highly effective. PRBO reports that production was the highest since their monitoring program began in the early 1980's. In addition, two nests were located at Fort Ord, the first nests on this stretch of beach in several years. Funding for predator management is being sought for 1996.

California Clapper Rail monitoring in San Francisco Bay is continuing. The population appears to be remaining stable with some increases in areas where predator management has been sustained. Joy Albertson, Cooperative Education student with the Refuge, has completed her Master's research on factor affecting reproductive success in California Clapper Rails, focusing on contaminants and predation. Her thesis will be completed in November 1995.

Non-native red foxes destroyed all Caspian Tern nests located on the Refuge within the M4/M5 colony. The colony was protected by fencing, however water levels were inadvertently lowered as part of a solar salt pond operation, allowing access to the colony. The colony will be monitored more frequently in order to prevent this in the future.

Jean Takekawa transferred to Nisqually NWR Complex in Olympia, Washington in September 1995. She will assist with the management of the Refuge Complex, which includes the San Juan Islands, Grays Harbor, and Dungeness Spit,

Continued on page 33

Book Reviews

StatXact-Turbo. Statistical Software for Exact Nonparametric Inference. 1989, 1991, 1992. and LogXact-Turbo. Logistic Regression Software Featuring Exact Methods. 1992, 1993. CYTEL Software Corporation. 675 Massachusetts Avenue, Cambridge, MA 02139. Tel (617) 661 - 2011 Fax (617) 661 - 4405.

In analyzing our data, seabird and other researchers rely on probability values and confidence intervals. While it may be easiest to use parametric statistics, we must often rely on nonparametric statistics when the frequency distributions are not normal, sample sizes are small or for other reasons. Most commonly used statistical software packages include nonparametric tests. These packages calculate nonparametric statistics based on asymptotic calculations. The results are accurate when the assumptions are met. However, when the assumptions of asymptotic theory are not met (the frequency distribution is heavily skewed, sample sizes are small, there are numerous ties or there is a large imbalance in group sample sizes), the results may be very misleading. In these cases, it is important to calculate exact probabilities.

Consider attendance by three species at a small seabird colony. By counting the number of adults at their nests we might come out with the following number of birds at different times:

TIME:

t1 t2 t3 t4 t5 t6 t7 t8

SPECIES:

Sp 1 0 0 1 1 0 0 6 0

Sp 2 1 0 1 0 1 1 1 1

Sp 3 0 0 0 0 0 0 9 0

If we calculate the probability that this attendance pattern is random (null hypothesis), we would derive very different probabilities from exact and asymptotic calculations:

	FISHER	PEARSON	LIKELIHOOD RATIO
Asymptotic p-values:	0.1658	0.1095	0.0779
Exact p-values:	0.0021	0.0109	0.0040

There can be large differences between exact and asymptotic probabilities, depending on how well the numbers fit the assumptions of the asymptotic calculations. Collecting data is the fun part of our work, but the very strength of our conclusions depend on statistical inferences.

Given the importance of this discrepancy between exact and asymptotic results, I strongly recommend calculating exact probabilities for nonparametric statistics whenever possible. This software package does this well. It should be used frequently in conjunction with other parametric statistical software and it should be used in place of the small nonparametric parts of larger packages that are not as comprehensive.

Mehta, Patel and their colleagues of the Harvard Public Health School, spent over ten years developing their programs that they are still expanding. The packages are very comprehensive and sophisticated. They include not just the usual 2 x 2 Fisher Exact Tables that are included in many packages, but also a large array of tests as described below. They also include stratification as well as Monte Carlo simulations for large sample sizes (though the package can calculate exact probabilities for very large sample sizes). The package is quite complete.

The StatXact program calculates many tests, including: One sample procedures (Binomial confidence intervals, Wilcoxon signed rank test, Permutation test with general scores, and Exact permutational distributions), Two sample procedures (Wilcoxon [Mann-Whitney] tests, Normal scores, Savage tests, Logrank censored scores, Permutation tests with general scores, Exact permutational distributions), r x c contingency Tables (Fisher's exact tests, Pearson's chi-squared test, Likelihood ratio tests, Kruskal-Wallis tests, Jonckheere-Terpstra tests, and others), Stratified 2 x 2 contingency tables, etc.

The LogXact program concentrating on a Logistic Regression is more specific in orientation and equally impressive. However, it does not include multivariate Logistic Regression that may have been more

useful for my analyses.

I evaluated these two packages. Each package is available in a "normal" version that I did not examine and a "Turbo" version. The "Turbo" versions can handle much larger data sets than the former and are about 20 times faster than the "normal" versions. The "Turbo" versions can take advantage (and require) 0386 and 0486 computers, math co-processors and at least 2 megabytes of RAM.

I found the software easy to use. Installation was easy. The manuals are well-written and include easy-to-follow examples. The on-line help was also comprehensive. Data entry and manipulation are easy within the program. However, importation is more difficult. Data can be imported in ASCII or from SAS or EGRET, but not easily from a spreadsheet or from a database.

Statistical tests can be run easily from the menus or in batch files. There is no editor within the program so batch files must be written using another editor.

The costs seem high at \$695 for the "Turbo" versions and \$195 for the "normal" versions. But the market that has been targeted is large and seems to be dominated by medical professionals and economists rather than field biologists. Academic prices are available. On the other hand, when one considers the importance of calculating exact probabilities as well as the normal costs of other statistical software that do not cover nonparametrics as adequately, the cost seems less prohibitive.

In summary, I feel that the ability to calculate exact probabilities for nonparametric statistics is often important. This program does this very well. If I were limited to two statistics programs, I would choose a general program and StatXact Turbo for nonparametrics.

Malcolm Coulter, P.O. Box 48,
Chocorua, New Hampshire 03817

From the periodical literature

Janet M. Williams and Timothy C. Williams. *Seabirds observed on two global circumnavigations in tropical and subtropical oceans and the subarctic Pacific. 1994. Bird Populations, vol.2. pp. 22.*

Bird Populations, the new serial with the subtitle "A journal of global avian biogeography," publishes longer papers and

statistical reports, thus it really fills a void. The authors of this paper censused birds during two different seasons in two different years from on board a vessel, with aid of binoculars and sea charts, across the North Pacific Ocean and East China Sea, across the tropical Indian Ocean, and across the tropical Atlantic Ocean. The tabulated data (with sea surface temperatures added) are complemented with descriptive notes of (for example) huge migratory flocks of shearwaters, 300 and 1,000 km wide, respectively, in the North Pacific north of the NW Hawaiian Chain. of huge migratory flocks of shearwaters, 300 and 1,000 km wide, respectively, in the North Pacific north of the NW Hawaiian Chain.

R.P. Wilson, H. Weimerskirch and P. Lys. A device for measuring seabird activity at sea. 1995. *Journal of Avian Biology*, 26: 172-175.

This paper is published in a periodical which now runs under a new name. Its former 25 volumes bore the title *Ornis Scandinavica*. Authors attached water temperature loggers to the feet of six breeding *Diomedea exulans* at the Crozet archipelago in the South Indian Ocean. Temperature and position (by satellite) was continuously recorded during 24 days, the maximum recording life of the delicate device. Thus, not only was the sea surface temperature obtained at the position of the bird on foraging flight, but by the alternation of the recorded (sea or air) temperature and the rest/flight activities of the birds were logged as well.

M. D. F. Udvardy Department of Biological Sciences California State University Sacramento, California 95819



NOW AVAILABLE — A NEW PACIFIC SEABIRD GROUP SYMPOSIUM

BIOLOGY OF MARBLED MURRELETS — INLAND AND AT SEA

S.K. NELSON AND S.G. SEALY (editors)

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Spring issue: April 15

Fall issue: October 15

Please send final drafts of all articles and other submissions to Steve Speich by the above dates.

Bulletin Board

First International Conference on the Biology and Conservation of Albatrosses - 28 August to 1 September 1995 - Sponsored by the Australian National Parks and Wildlife Service (Tasmania)

Hobart Tasmania was the site of the First International Conference on the Biology and Conservation of Albatrosses. Thirty-six oral presentations and 37 poster presentations on topics including systematics, population dynamics, monitoring, contaminants biology, diet and energetics, foraging, and fisheries issues resulted in valuable information exchange among this international group of albatross biologists. Following the scientific meeting was a 2-day workshop focussing directly on the problem of albatross mortality as a result of interactions with longline fisheries. During several vigorous sessions the group explored new methods of mitigating bycatch, standards and procedures for effective observer programs, needs for land-based research on albatrosses, and identification of albatross populations and fisheries that need to be watched. The proceedings of the meeting will be published.

The following is the official statement produced by the members of the workshop: **THE FIRST INTERNATIONAL WORKSHOP ON ALBATROSS-FISHERIES INTERACTIONS** The First International Workshop on Albatross-Fisheries Interactions met from 31 August-1 September 1995 in Hobart, Tasmania. It consisted of 120 people from 11 countries and included bird biologists, fisheries biologists, national administrators, and fishing industry representatives. The Workshop recognised that the incidental mortality of albatrosses caught on hooks deployed by bottom and surface longline fisheries around the world poses a serious threat to many albatross populations. This by-catch co-incidentally reduces the effectiveness of many albatross populations. This by-catch co-incidentally reduces the effectiveness of longline gear in catching fish. Direct and/or anecdotal data indicate that most albatross species are being taken as by-catch whenever their distributions overlap with longline fisheries, throughout the world's oceans. The Workshop recognised that in some fisheries sub-

stantial efforts to reduce by-catch have been made and further research on mitigation measures is underway, although increased research on mitigation is required. The Workshop agreed that in fisheries where such mitigation measures are not already in place the following actions are urgently required to prevent albatross by-catch and to increase our understanding of the problem:

1. A number of mitigation measures should be put into place immediately to reduce the bycatch of albatrosses in longline fisheries, thereby reducing albatross mortality and increasing the effectiveness of longlines in catching fish:

-use effective streamer lines when setting longlines

-set longlines only at night where appropriate

-use thawed bait only

-pay attention to the time and placement of offal discharge

-where possible add weight to lines

2. There should be urgent research to further develop effective mitigation measures.

3. National and International observer programs must be initiated in longline fisheries to quantify the levels of albatross-fisheries interactions.

4. An international albatross banding program should be initiated, with special attention being paid to band retrieval both at sea and on breeding colonies.

5. The existing land-based studies to monitor and understand albatross population processes should be continued, and similar studies should be initiated on additional populations.

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Seabird Network Bycatch Working Group

Cooperative Solutions to Seabird Bycatch Problems: A joint project of the Institute for Fisheries Resources and the National Fisheries Conservation Center

The Seabird Network Bycatch Working Group will be a major cooperative effort among fisheries, conservation and scientific organizations to not only seriously address the issue of seabird bycatch on the basis of the best available science, but to arrive at real-life solutions. It will also make use of modern communications technology to greatly leverage our outreach, impact and effectiveness, while minimizing costs. Using "Internet" technology, the proposed Seabird Network will electronically convene scientists, conservationists, and fishing leaders throughout the west coast (and worldwide) to do the following:

- 1) Assess the problem, gather all the scientific data on seabird bycatch (now widely scattered) into one readily available form easily accessible by computer modem, and to review and critique the current status of all relevant research;
- 2) Recommend priorities for future study and funding at state and federal levels, based upon an assessment of where entanglements are most likely to cause significant population-level impacts;
- 3) With the help of those actually in the fishery, to identify and promote new fishery strategies to reduce the impact of fishing methods where appropriate, including the development and evaluation of new gear types and techniques designed to minimize or altogether avoid unwanted bird bycatch; and
- 4) Advocate sound conservation and management policies regarding bird entanglement, including working to identify and help secure funding for key additional research to make better conservation possible.

Thanks to modern electronic networking, this work can be truly international by involving literally hundreds of participants from all over the world, be ongoing (rather than just a single event such as a conference), be fully accessible to the general public from any desktop computer, be ongoing (rather than just a single event such as a conference), be fully accessible to the general public from any desktop computer, be electronically recorded, and be conducted at only a fraction of the costs any such effort would have entailed in the past.

The Seabird Network will establish a publicly accessible World Wide Web (WWW) site and host one or more E-mail "listserver" round table discussions and scientific working groups among scientists, agencies and citizens involved in bird conservation and fisheries issues. Notice of our electronic discussions and report will be posted to all relevant Internet mailing lists and in fisheries and conservation publications throughout North America and Europe.

The Network will deal with a variety of species, but the initial focus will be on the marbled murrelet. Fisheries interactions with this species have generated concerns that are urgent in both biological and socio-political terms. Among bird species known to be incidentally caught in fisheries, only the marbled murrelet is listed under the US Endangered Species Act as well as the Migratory Bird Treaty Act. The fragile and protected status of only the marbled murrelet is listed under the US Endangered Species Act as well as the Migratory Bird Treaty Act. The fragile and protected status of this species has raised the possibility of population-level impacts from fisheries. Likewise, the future of some commercial salmon fisheries depends upon sound conservation of these birds. For example, Puget Sound's gillnet fleet may be banned outright unless its members can demonstrate or develop the capability to meet legal and biological standards for protection of marbled murrelets and other seabirds.

In addition, the Network expects to research and publish a report on seabird interactions with fisheries by January, 1997. This report will summarize the findings and recommendations of the Network, provide a basis for public policy makers to evaluate proposed actions for seabird conservation in fisheries, and lay out a proactive strategy

for continuing research and action.

The Seabird Network Bycatch Working Group is a collaborative effort of the Institute for Fisheries Resources (affiliated with the Pacific Coast Federation of Fishermen's Associations) and the National Fisheries Institute for Fisheries Resources (affiliated with the Pacific Coast Federation of Fishermen's Associations) and the National Fisheries Conservation Center, two organizations known for fostering cooperation among fishing and conservation leaders to solve problems. Participants and advisors will include representatives of the National Audubon Society, the Center for Marine Conservation, National Fisherman Magazine, the American Fisheries Society, fishermen's groups, many state and federal agencies and a number of reputable institutions dealing with fisheries research and management in both the US and Canada. Funding is being sought for this effort now, with a projected start-up date of January 1, 1996.

TO JOIN THE NETWORK: You only need E-mail capability and access to the World Wide Web. Please indicate your interest and E-mail your name, surface mailing address and phone, what agency or organization (if any) you are with, and a brief description of your interest and expertise on this issue to the Institute for Fisheries Resources at: FISH11FR@AOL.COM

This will be the initial Network E-mail address for this Project. Project coordinators will be Glen Spain, Program Director for the Institute for Fisheries Resources, and Brad Warren, Executive Director of the National Fisheries Conservation Center. For more information you may also contact Glen Spain, Institute for Fisheries Resources, at PO Box 11170, Eugene, OR.

Position Available

The Charles Darwin Foundation for the Galapagos Islands (CDF) is seeking a Director for its international research, conservation and education center, the CDRS.

Duties: management and administration of CDRS, including 45 scientific and support staff; organization/supervision of annual Duties: management and administration of CDRS, including 45 scientific and support staff; organization/supervision

of annual process of planning, execution and evaluation of Station's programs; provide effective technical advice and cooperation to many Ecuadorian counterpart agencies, especially Galapagos National Park Service (GNPS), both for management of the national park (97% of the Galapagos' 8,000 km² land area) and the new 70,000 km² Marine Resources Reserve; supervise extensive training and educational programs for university students, the general public, and park guides; obtain a substantial proportion of the Station's annual budget via preparation of proposals and reports and participation in CDF's fundraising campaigns in Europe, North America and Ecuador.

Qualifications: Ph.D. or equivalent in a field of natural sciences, natural resources management or similar; minimum 4 year's practical experience in one's field, preferably in Latin America; bilingual English/Spanish; 25-55 years and in good physical condition; demonstrated strong interpersonal skills, team building and leadership with persons of wide variety of educational and cultural demonstrated strong interpersonal skills, team building and leadership with persons of wide variety of educational and cultural backgrounds; enjoy living and working in isolated conditions in a different cultural setting; preference given to candidates with experience in administration of similar institutions or programs, applied conservation research and/or training and educational program design and practice.

Benefits: basic salary of US\$ 30,000 per year with possible increment depending upon experience; candidates from European Union countries with direct relationship with a well-recognized university, research center or similar institution would be eligible for substantial additional increment if selected (due to a special European Union grant); free high-quality housing and health insurance; international transport of director, family and personal belongings; annual paid home leave of one month and international transport for same for director and family, after first two years of service; contract initially for two years, renewable.

Deadline for applications: December 15, 1995 (E-mail, telephone or fax if you are near or past the deadline yet still are considering applying). Desire to fill position between February 1 and June 1, 1996.

Application Procedures: Send letter of application detailing qualifications and in-

terest, curriculum vitae and three letters of reference to Dr. Craig MacFarland, President CDF, 836 Mabelle, Moscow, Idaho 83843, USA. Applications will not be accepted by e-mail

For a complete position description, or, if you have questions, write, EMail, telephone or fax one of the following people:

Dr. Craig MacFarland, President, Charles Darwin Foundation, 836 Mabelle, Moscow, ID 83843, USA, EMail: cmacfarl@uidaho.edu, Tel:(208)-883-4876, Fax:208-883-0653

Dr. Ole Hamann, Vice President, Charles Darwin Foundation, Botanical Garden, University of Copenhagen, Oster Farimagsgade 2B, DK-1353 Copenhagen K, Denmark, Email: oleh@bot.ku.dk, Tel:(45)-35-322222, Fax:(45)-35-322221

Dr. Howard Snell, Vice President for North America, EMail: snell@alcor.unm.edu, Tel: (505)-277-3524

CDF, Inc., 100 N. Washington Street, Suite 311, Falls Church, VA 22046, USA, EMail: nzpcdf01@sivm.si.edu, Tel: 703-538-6833; Fax: 703-538-683

Howard L. Snell, Associate Professor & Director/Vice President for North America, Museum of Southwestern Biology/Charles Darwin Foundation for the Galapagos Islands, University of New Mexico, Albuquerque, New Mexico 87131 *In the United States*: snell@mail.unm.edu Office: (505) 277-3524, Fax: (505) 277-0304. *In the Galapagos*: hsnell@fcdarwin.org.ec (usually between 15 May and 15 August) This electronic address reaches Heidi Snell year round

Macintosh program for species distribution mapping

RangeMapper 2.3 is a Macintosh program for generating species distribution maps of publishable quality, that can be dropped into your own documents. It plots maps in seven projections, and includes distribution maps of publishable quality, that can be dropped into your own documents. It plots maps in seven projections, and includes mapping data files for the world (low resolution) and for North

America (higher-resolution). Higher-resolution files are also available for Australia and New Zealand, and are under development for Europe and South America. Higher-resolution files with more hydrologic detail, major highways, and administrative borders (National Forests, etc.) are available for Alaska north of 64 degrees, Washington, Idaho, Oregon, and California. More states will follow later. There is considerable flexibility as to what is shown in a given map—even to the point of adding (or highlighting) hydrologic features individually by name. Species data are plotted by reading ASCII files of lat/long data, which can be exported from data bases or spreadsheets. Data may be plotted as dots (squares/circles, open/filled), lines, or 3-D bars whose heights are controlled by a third variable (thus displaying the geographic variation of quantitative information). A user-designed lat/long grid (or lat/long tick marks around the border) may be overlaid on any map, and lat/long coordinates may be read off the screen.

For a detailed brochure with many sample maps, write to:

Tundra Vole Software
1590 North Becker Ridge Road
Fairbanks, AK 99709-2705
Phone: (907) 479-2689
E-mail: tvole@imagi.net

A longer description is also available by e-mail.

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Continued from page 28

Protection Island, and Washington Coastal NWRs.

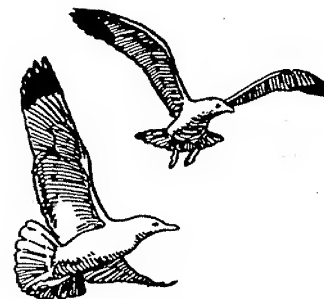
University of California - Davis

Polo Moreno and Dan Anderson completed another field season of movements, behavior, and survival of American White Pelicans in the Klamath Basin. Eduardo Palacios will begin field studies in 1996 in the Gulf of California (the project was described in a previous report). Steve Dewiler conducted exploratory studies on the effects of natural toxicants on birds in high saline environments. Tom Cahill continued contaminant studies of Osprey,

Western Grebes, and other waterbirds, emphasizing elemental patterns in feathers, using PIXE techniques. Polo, Eduardo, Tom, and Steve are all doing thesis projects at UC-Davis under Anderson's supervision. The best news yet: **Frank Gress** completed his Ph.D. thesis on a VERY long-term study of contaminants in southern California Brown Pelicans. **Dan Anderson** and **Scott Newman** recently completed for California Department of Fish and Game, a "soft-release" study on post-rehabilitation (from oiling) patterns of survival, behavior, blood chemistry, and movements of American Coots (as a common, easily obtained surrogate study species: goodness, we don't claim they are seabirds!). They also tested a transmitter design for possible future use on Common Murres and Western/Clark's Grebes during this study. Anderson continues to conduct movement and survival studies of control Brown Pelicans (for oil spill damage assessments) with radiotelemetry, and has developed a response procedure and "kit" for CDFG in the event of an oil spill, to monitor rehabilitated-released birds (let's hope it never occurs).

D. Michael Fry is conducting a toxicity study to examine petroleum and dispersant effects on isolated red blood cells, as a model for hemolytic anemia of seabirds exposed to oil. He is continuing his work on pollutants in seabird eggs along the Pacific Coast. A study is in progress on mitochondrial DNA sequencing in Marbled Murrelets and auklets, comparing California and Alaskan populations. **D. Michael Fry** and **Dan Anderson** continue their telemetry studies on the recovery of brown pelicans following release from cleaning centers. **Jay Davis** is conducting his Ph.D. research with **D. Michael Fry** on the ecology and pollutant exposure in cormorants in San Francisco Bay and the Delta.

Jean Takekawa



Published Proceedings of Symposia of the Pacific Seabird Groups

At irregular intervals the Pacific Seabird Group holds symposia at its annual meetings. The published symposia are listed below. Available symposia may be purchased by sending a check or money order (in US Dollars) to Jan Hodder, Treasurer, Pacific Seabird Group, Oregon Institute of Marine Biology, University of Oregon, Charleston, Oregon 97420 USA. Prices include postage (surface rates) and handling.

SHOREBIRDS IN MARINE ENVIRONMENTS. Frank A. Pitelka (Editor). Proceedings of an International Symposium of the Pacific Seabird Group, Asilomar, Cali-

fornia, January 1977. Published June 1979 in, *Studies in Avian Biology* Number 2. Out of print.

TROPICAL SEABIRD BIOLOGY. Ralph W. Schreiber (Editor). Proceedings of an International Symposium of the Pacific Seabird Group, Honolulu, Hawaii, December 1982. Published February 1984 in, *Studies in Avian Biology* Number 8. \$12.00.

MARINE BIRDS: THEIR FEEDING ECOLOGY AND COMMERCIAL FISHERIES RELATIONSHIPS. David N. Nettleship, Gerald A. Sanger, and Paul F. Springer (Editors). Proceedings of an International Symposium of the Pacific Seabird Group, Seattle, Washington, January 1982. Published 1984 as, Canadian Wildlife Service, Special Publication. Out of print.



ECOLOGY AND BEHAVIOR OF GULLS. Judith L. Hand, William E. Southern, and Kees Vermeer (Editors). Proceedings of an International Symposium of the Colonial Waterbird Group and the Pacific Seabird Group, San Francisco, California, December 1985. Published June 1987 in, *Studies in Avian Biology* Number 10. \$18.50.

AUKS AT SEA. Spencer G. Sealy (Editor). Proceedings of an International Symposium of the Pacific Seabird Group, Pacific Grove, California, December 1987. Published December 1990 in, *Studies in Avian Biology* Number 14. \$16.00.

STATUS AND CONSERVATION OF THE MARBLED MURRELET IN NORTH AMERICA. Harry C. Carter, and Michael L. Morrison (Editors). Proceedings of a Symposium of the Pacific Seabird Group, Pacific Grove, California, December 1987. Published October 1992 in, *Proceedings of the Western Foundation of Vertebrate Zoology* Volume 5, Number 1. \$20.00.

THE STATUS, ECOLOGY, AND CONSERVATION OF MARINE BIRDS OF THE NORTH PACIFIC. Kees Vermeer, Kenneth T. Briggs, Ken H. Morgan, and Douglas Siegel-Causey (Editors). Proceedings of a Symposium of the Pacific Seabird Group, Canadian Wildlife Service, and the British Columbia Ministry of Environment, Lands and Parks, Victoria, British Columbia, February 1990. Published 1993 as, Canadian Wildlife Service, Special Publication, Ministry of Supply and Services, Canada, Catalog Number CW66-124-1993E. Free. Write: Publications Division, Canadian Wildlife Service, Ottawa, Ontario, K1A 0H3, Canada.

BIOLOGY OF MARBLED MURRELETS - INLAND AND AT SEA. S.K. Nelson and S.G. Sealy (Editors). Proceedings of a Symposium of the Pacific Seabird Group, Seattle, Washington, February 1993. Published in 1995 in, *NORTHWESTERN NATURALIST* Volume 76, Number 1. \$20.00.

Pacific Seabird Group Committee Coordinators

Contact committee coordinators for information and activities of committees and how you can participate.

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